行政院所屬各機關因公出國人員報告書

（出國類別：開會及考察）

參加國際健康促進研討會及參訪健康體能組織

出國人員：國立陽明大學 教授 陳俊忠
行政院衛生署國民健康局 技正 林真夙
行政院衛生署國民健康局 公共衛生護士 莊雯如

出國地點：美國
出國期間：九十二年十月二十一日至三十日
報告日期：九十三年二月九日

J4/C09204314

系統識別號:C09204314

公 務 出 國 報 告 提 要

頁數: 18 含附件: 是

報告名稱:

參加國際健康促進研討會及參訪健康體能組織

主辦機關:

衛生署國民健康局

聯絡人／電話:

／

出國人員:

林真夙 衛生署國民健康局 技正
莊雯如 衛生署國民健康局 公共衛生護士

出國類別: 考察

出國地區: 美國

出國期間: 民國 92 年 10 月 20 日 -民國 92 年 10 月 30 日

報告日期: 民國 93 年 02 月 18 日

分類號/目: J4／公共衛生、檢疫 ／

關鍵詞: 健康體能

內容摘要: 缺乏足夠的運動是導致不良生活型態因素之一。英美及西方各先進國家研究發現：許多慢性疾病均可藉由生活型態的調整而早期預防，因此世界各國紛紛提出有關健康體能或運動之政策、工作與研究計畫。同時，本署也自民國86年起，全力推動健康體能促進計畫，希望民眾減少靜態生活的機會，生活中隨時累積足夠的運動量，如此爲健康促進的最高經濟效益措施之一。此次參訪位於美國德州達拉斯市之The Cooper Aerobic Center爲享譽盛名之運動健康研究中心，該中心共分了八個部門，其中The Cooper Institute專門從事相關的研究，所發展的研究成果將提供政府部門作施政決策參考用。而美國CDC更是一個分工嚴謹之政府單位，投注龐大的經費與人力在健康體能促進方面，另於亞特蘭大舉辦之IHEA，今年的大會主題訂爲「International Conference on Health Promotion」，其中許多議題都是健康促進各領域所關切的議題。該組織更體認健康促進之重要性，於是決議更改該會名稱爲IHEPA（International Health Evalvation and Promotion Association）。經由此次參與國際會議及拜訪相關部門及學者，發現除政府部門之外，有許多民間單位及非營利組織都致力於健康促進的研究發展，因此國內應結合相關相關團隊，共同合作推廣健康體能。

本文電子檔已上傳至出國報告資訊網

摘要

缺乏足夠的運動是導致不良生活型態因素之一。英美及西方各先進國家研究發現：許多慢性疾病均可藉由生活型態的調整而早期預防，因此世界各國紛紛提出有關健康體能或運動之政策、工作與研究計畫。同時，本署也自民國86年起，全力推動健康體能促進計畫，希望民眾減少靜態生活的機會，生活中隨時累積足夠的運動量，如此為健康促進的最高經濟效益措施之一。

此次參訪位於美國德州達拉斯市之 The Cooper Aerobic Center 為享譽盛名之運動健康研究中心，該中心共分了八個部門，其中 The Cooper Institute 專門從事相關的研究，所發展的研究成果將提供政府部門作施政決策參考用。而美國 CDC 更是一個分工嚴謹之政府單位，投注龐大的經費與人力在健康體能促進方面，另於亞特蘭大舉辦之 IHEA，今年的大會主題訂為「International Conference on Health Promotion」，其中許多議題都是健康促進各領域所關切的議題。該組織更體認健康促進之重要性，於是決議更改該會名稱為 IHEPA（International Health Evalvation and Promotion Association）。

經由此次參與國際會議及拜訪相關部門及學者，發現除政府部門之外，有許多民間單位及非營利組織都致力於健康促進的研究發展，因此國內應結合相關相關團隊，共同合作推廣健康體能。

目錄

壹、前言‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧4

貳、行程及內容‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧5

一、成員與行程簡介‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧ 5

二、參訪庫柏有氧中心‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧7

三、參加國際健康促進研討會‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧9

四、參訪美國疾病管制局營養及身體活動部門、‧‧‧‧‧‧‧‧ 9

五、拜訪健康體能專家‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧10

參、具體成果‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧ 11

肆、心得‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧ 13

伍、建議‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧ 15

參加國際健康促進研討會及參訪健康體能促進組織

壹、前言

二○○○年，台灣主辦國際健康評量學會（International Health Evaluation Association，簡稱：IHEA）的雙年會及學術研討會，呂副總統親臨主持開幕，並由宋丕錕院長擔任 1998-2000 年的主席。剛卸任的世界衛生組織(World Health Organization)執行長也獲邀來台演講，成果豐碩獲得與會所有人員的肯定。

今年在美國亞特蘭大舉行之 IHEA 年會，主題特別訂為國際健康促進研討會，相關議題包括：健康促進政策、老人健康促進等，也都是國內各領域關心的事宜，本局與陳俊忠教授配合 IHEA 會議時間，同時拜訪 Ralph Paffenbarger 教授、James Sallis 教授等健康體能專家、並參觀 COOER CENTER 健康體能機構及美國 CDC 之健康體能部門，於九十二年十月廿一日出發，同（九十二）年十月三十日返台，相關成果包括於九十二年底邀請 Ralph Paffenbarger 教授、James Sallis 教授參與本局舉辦之健康體能國際會議、獲得美國 CDC 有關健康體能之相關資訊等。

貳、行程與內容

一、行程簡介：

第一天　　　十月二十一日

飛抵加州舊金山，拜會世界知名的流行病學專家 Ralph Paffenbarger 教授。

第二天　　　十月二十二日

飛抵德州達拉斯庫柏健康體能活動中心（The Cooper Aerobics Center）。

第三天　　　十月二十三日

上午參觀庫柏研究中心及附設診所（The Cooper Institute）及健身設施（The Cooper Aerobics Center）。下午參加庫柏研究中心舉辦的身體活動及心理健康研討會（the Conference of "Physical Activity and Mental Health: A Multidisciplinary Approach"）。

第四天　　　十月二十四日

飛抵喬州亞特蘭大，參加為期四天，由國際健康評量學會（International Health Evaluation Association）主辦的國際健康促進研討會（International Conference on Health Promotion）。

第五~六天　十月二十五日~二十六日

國際健康促進研討會會期。

第七天　　十月二十七日

IHEA 研討會會後，拜會美國疾病管制局營養及身體活動部門（Centers for Disease Control and Prevention, Division of Nutrition and Physical Activity），與部門主管及專家交換意見。

第八天　　十月二十八日

飛抵加州聖地牙哥，拜會聖地牙哥大學知名學者 James F. Sallis 博士及其研究團隊，聆聽 Sallis 博士領導的 Active Living Policy and Environmental Studies Program （ALPES）簡介及執行成果，並對社區健康營造，彼此交換意見。

第九天　　十月二十九日

返台。

二、參訪庫柏有氧中心

庫柏有氧中心（The Cooper Aerobics Center）位於美國德州達拉斯市，佔地 30 英畝，其創始人肯尼士.庫柏博士於西元 1970 年創立，庫柏博士是運動醫學界公認的翹楚，他從他的一些預防醫學研究及大眾媒體，書報及電視等訊息中嗅出，世界各地許許多多的民眾都急著想要去改善他們的健康。

他所發展的這套有氧系統課程已被廣泛運用於軍事機構，公司即超過 2500 所大學及公立學校。並且截至目前庫柏博士的 18 本著作，已被翻譯成 41 種語言及點字，且在全世界已超過三億本翻譯本。

整個庫柏有氧中心包括診所、學會、健康規劃、有氧中心、健康中心、訪客住宿中心、訓練中心及公司八個分部：

• 庫柏診所，有 19 位內科專業領域的醫師，在 6 至 8 小時中完成綜合的內科病史及身體檢查，實驗室檢查，運動壓力測試，身體組成測試，營養諮詢及規劃，運動諮詢與評估，壓力檢測，飛行檢定，新血管檢測…。

• 庫柏學會，在 The Cooper Aerobics Center 內，唯一非營利機構，以其學術研究及教育課程聞名世界，主要研究有：從身體活動到癌症預防和健康社區等臨床研究及其影響，心血管疾病危險因子的專家諮詢及行為介入，受僱者的健康和生產力諮詢。

•健康課程，所有 The Cooper Aerobics Center 的方向都是朝著庫柏健康課程這個方向－快速追蹤並找出真實方法使改變成正向生活型態，健康課程有為期 4 天、6 天及 13 天，三種課程規劃選擇，該中心將提供所需的器材，以促進其健康，營養、減重、降低壓力….等

•庫柏 spa，一個佔地 3200 平方英呎，是個寬闊而充滿美學設計，豪華而讓人放鬆的地方，除提供專業而富美學之治療服務外，更提供寧靜和恢復健康的治療。內容包括：瑞典式按摩、運動、芳香治療、石頭療法、臉部按摩、修剪指（趾）甲、身體護膚、spa 用品及相關禮品專賣店。

•庫柏健康中心，其設備及課程包括：一哩的走路及跳躍、運動強度訓練、心血管系統伸展訓練，水上運動，踏步，室內腳踏車，太極，瑜珈，芭蕾、籃球、拳擊、網球、營養課程。

•訪客住宿中心，因應個人及團體住宿所需，提供 62 個房間，及提供 8 至 225 人開會之會議場地。

•庫柏訓練中心，協助機構維持其人員健康及產能，諮詢服務包括：觀念及計畫回顧，可行性研究/市場研究，設備介紹，課程設計和發展。

•庫柏概念公司，自 1998 年新發展出的一個部門，藉由廣播、電視、及網路等途徑，散布有關 The Cooper Aerobics Center 的相關訊息。

三、參加國際健康促進研討會

國際健康評量學會（International Health Evaluation Association，簡稱：IHEA）此次大會主題為國際健康促進研討會，議程分為四天及多場次舉行，內容包括：健康促進之政策與策略、特殊人群的健康促進、老人的健康促進、職場健康促進、全球健康危害之健康促進等。以下就各議題分別簡述：

（一）健康促進之政策與策略

近年來造成死亡與殘障之原因，主要為抽菸、營養不良、無適當之運動、及酗酒等因素，因此健康政策之重點已不限於疾病之治療，而是在於健康促進。包括美國、俄國、日本等，已經發展出健康促進及疾病預防之政策、建立國家危險因子監測系統、並建立公共衛生體系運用監測資料之能力，以引導健康促進措施之進行，例如：日本已有健康促進法，且將日本人之健走步數列為健康指標之一。

（二）特殊人群的健康促進

本議題之重點在於透過社區能力增進之步驟，降低人群間之不平等。首先評估社區之資源、優點及缺點，並依據評估結果，擬定提升社區能力之計畫，後續並依據對於社區及族群之了解，排列資源分配之優先順序。

（三）老人的健康促進

成功的老化定義為：罹患疾病及相關之失能之低危險因子、良好的功能狀態、與積極的生活態度。

為促進老人健康，美國 National Institute of Health 因應老年人生理上之需求，設計提供老年人運動之網站，不僅運用較大的字體及簡單之示範，同時提供語音說明（見圖 1）。

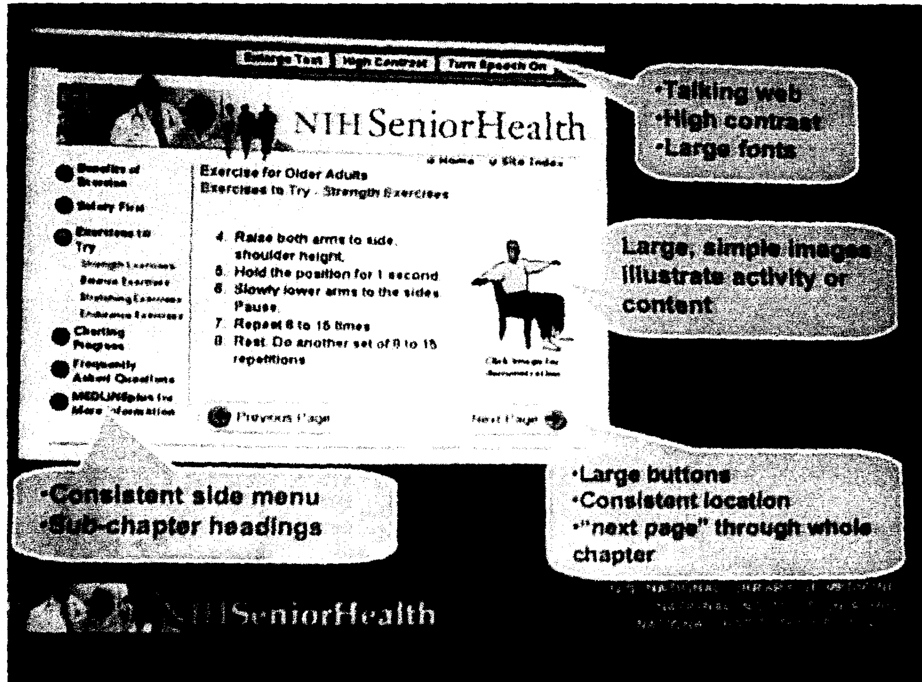


圖 1：NIH 之老人運動網站

另外，在一成功之老化之退休計畫實驗中，包括五個階段：1. 研擬計畫，並請退休者參與該計畫；2. 促進與簽約，向即將退休者說明計畫並邀請他們參加；3. 提供健康活動包括：生活型態指引、危險因子評估、疾病篩檢等，以鼓勵健康行為之學習及參與；4. 提供個人健康指導，包括活動後之電話提供教導計畫；5. 追蹤個人執行情形。成功的促進老人之健康行為，並降低膽固醇值、血壓值、提升運動時間及纖維之攝取。

（四）職場健康促進

瑞士的職場健康系統是一獨立之系統，有一特別訓練過的團隊，包括醫師、護士、心理治療師、精神醫師、管理諮詢者等，團隊之成員互相合作且與各案之間亦有良好之互動。近年來，職場健康促進之焦點由疾病治療轉為健康促進，透過辦公室之健康促進政策，包括戒菸、健康飲食、運動等措施；及管理課程之提供，包括溝通及衝突管理技巧等；及密切之追蹤及個人化之提醒，確實可增進員工之健康，減少醫療支出。

（五）全球健康危害之健康促進

近年來愛滋病之增加已造成世紀之問題，本議題之重點包括了解民眾對於 HIV 之知識、加強保險套之使用等，另外 2003 年 SARS 的侵襲，造成香港 1703 人感染，234 人死於 SARS，香港提供之預防及控制策略包括：1. 預防教育及宣導；2. 追蹤感染原；3. 五個主要控制策略：隔離及監測、學校停課、香港與大陸間之疾病資訊交流、出入境旅客體溫測量、環境清潔等；4. 加強與大陸之合作及溝通；5. 發展快速診斷工具。

四、參訪美國疾病管制局營養及身體活動部門

美國疾病管制局（Center of Disease Control）設有營養及身體活動部門，並於 1996 年出版「健康體能和健康」一書，說明身體活動在對於健康之重要影響，在 2000 年 1 月，美國提出“Healthy People 2010”作為西元 2010 年美國健康目標，並將「健康體能」列為公共衛生議題十大健康指標之一。

美國營養及身體活動部門的「健康體能與健康科」最近與其他國家組織，透過一系列的環境及人群的促進，發展增加健康體能之指引方針，包括：

※ 透過生理活動與運動促進年輕人之健康（附件 1）

※ 提昇健康體能：社區行動之指引（附件 2）

※ 國家藍皮書：促進五十歲以上成人之健康體能（附件 3）

※ 增進健康體能：社區預防服務工作之建議報告(附件 4)

同時美國 CDC 研擬「身體活動評量手冊」(Physical Activity Evaluation Handbook)(附件 5)，以了解上述措施是否能有效的運用相關基金與其他資源、及評估措施之適當性及效益。

五、拜訪健康體能專家

Ralph Paffenbarger 教授係美國健康體能專家，著有「哈佛經驗」一書，此次拜訪主要為邀請參加九十二年十二月行政院衛生署國民健康局辦理之健康體能國際會議。

James Sallis 教授係美國社區身體活動推廣之專家，著有多篇研究，此次拜訪主要為邀請參加九十二年十二月行政院衛生署國民健康局辦理之健康體能國際會議。

參、具體成果

一、 順利拜訪 Prof. Ralph Paffenbarger，確定十二月中旬來台灣參加研討會事宜。

二、 順利參訪 Cooper Aerobics Center，及參與 Physical Activity and Mental Health 研討會，收集相關資訊，陳俊忠教授並與 Dr. David Brown 初步交涉未來有關體能活動，心智健康與醫療資源耗用的合作計劃。

三、 分組參與 IHEA 不同會議場地之研習，收集相關資訊， President of The Healthier People Network，Prof. Hutchins 更邀請台灣陳俊忠教授參與國際 Health Risk Appraisal 的問卷中文翻譯及工具發表計劃。

四、 成功參訪美國 CDC 之營養與身體活動部門，收集該國辦理健康體能之相關資訊。

五、 積極參與 IHEA 組織活動，陳俊忠教授並獲提名推選為亞太地區兩位共同主席（Co-chair）之一，協助推廣會務。

六、 拜訪 Dr. James Sallis，收集有關社區身體活動推廣的研究與活動，並參觀適合活動地區的設備環境，且確定十二月中旬來台演講事宜。

肆、心得

一、 由不同工作性質（產、官、學）與不同專長領域（醫、護、體育、營養、物治)，組成的參訪團，彼此互動相當融洽，腦力激盪交流效果良好，為未來工作推廣的種籽尖兵與國際示範。

二、 Cooper Aerobics Center 的架構理想，包含健康評估，營養指導，運動處方，環境規劃，研究發展等軟硬設施與系統，為全世界最高水準，最具代表性的健康促進中心，可做為國內相關產業發展之學習代表。

三、 體能活動與心智促進的問題相當值得關心，但需要不同領域的研究與共同參與，面對不同困難的挑戰，發展新的研究工具與方法，釐清問題，提出具體作為，改善心智健康。

四、 健康促進已成為國際未來醫療服務的主流，對不同地區，不同種族，不同社經地位，不同年齡，不同健康狀態的民眾，如何發展工具經由篩檢、教育、行為指導、疾病管理，落實個別化與生活型態介入，達到疾病預防與健康促進的目的，應是全世界各醫療團隊的共同任務，國際合作為未來趨勢，美日將扮演領導角色。

五、 肥胖與不活動為文明社會最大的健康議題，也是造成美國國民健康與醫療資源支應困難的問題。因此，投入更多人力與經費，發掘問題根源，尋找對策，減少慢性病與併發症，已是美國衛生署

近年工作重點，美國疾病管制局對於健康體能之議題十分重視，進行國內外相關研究與推廣活動，並積極辦理訓練講習，提供各種資訊手冊。

六、 Robert Wood Johnson 等民間基金會大力投入經費，支持整合資源的研究計劃，針對如何改善社區環境，以提高民眾動態生活機率，進行長期努力，並將研究數據轉化為具體易懂的數字依據，提供各階層決策者做為促使政策研擬落實的利器，新的研究團隊將包含決策者、社區工作者、都市計劃人員、交通專家、行為科學專家、運動科學專家、流行疾病學者等不同專長者共同組成。

七、 接觸過的學者各有專長，但均對考察團相當友善，也對考察團成員的表現相當滿意，均有意共同合作或協助完成訓練、研究或研究發表，為未來可繼續聯絡的有利諮詢合作對象。

伍、建議：

一、加強國內健康體能指引之制定及活動之評價

（一）加強國內健康體能指引之制定，以作為社區執行健康體能之參考：美國 CDC 對於健康體能議題，不僅列為 Healthy People 2010 指標，並製作許多指引，提供各年齡層之民眾執行健康體能之參考。

（二）加強健康體能之評估：美國針對健康體能之活動有一評估手冊，目前本局挹注經費於健康體能之宣導及活動，可應用該手冊於相關之評價，並制定國內之評價基準。

二、擴大體能活動與健康促進研究推廣組織，提昇研究品質及加強計劃評估

（一）鼓勵跨領域整合型長期計劃，研究提供政策所需之數據與方案。

（二）鼓勵民間組織（學會、協會、基金會）提供配合資源，接受委託進行研究、研究宣導與落實執行工作。

（三）運動指導人力之培養、考核與任用，宜規劃研究納入疾病預防與健康促進服務體系。

（四）長期追蹤型之世代研究宜擇重點支持，以作為政策執行方向與成效的客觀依據。

（五）鼓勵國際通用評量工具研究發展，以方便納入 WHO 共同資料庫，

進行國際比較研究。

三、建立此次拜訪單位、個人之資料庫，提供本局等政府機構參考，並研擬健康體能之國際訓練及合作計畫。

（一）定期派員參與 Cooper Aerobics Center、CDC、與 ALPPG、PACE 的研習訓練課程，培養人才，同時建立持續合作管道。

（二）安排、鼓勵相關研究計劃主持人與國內外專家聯繫互動，指導計劃，聘請重要計劃或機構主持人為台灣政府的有給諮詢顧問，規劃執行與論文成果發表與進行計劃評估。

（三）支持國際合作計劃，藉由國際組織的活動與參與，增加台灣參與國際衛生事務的機會。

四、協助國內學者爭取參與機會投入 IHEPA 等 NGO 組織，同時藉機訓練培養更多國際醫療學會組織工作人才，儲備推動加入 WHO 的後援及未來擴大推動國際醫療合作的人才庫。

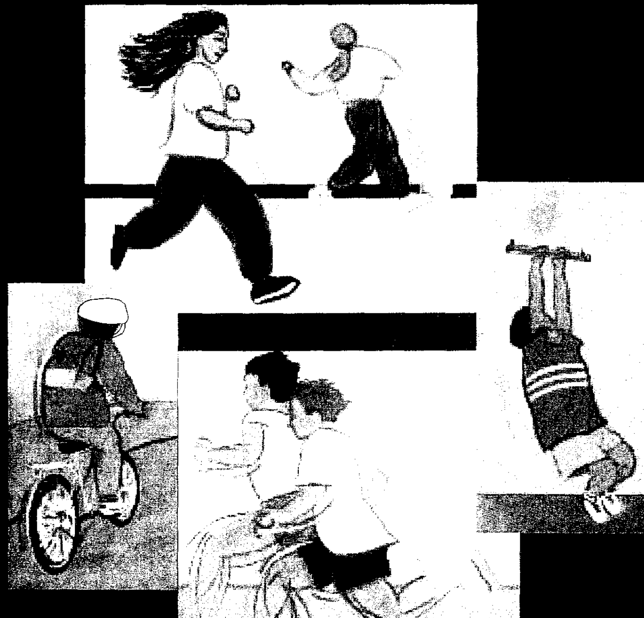
（一） 鼓勵參與國際組織爭取重要職位。

（二） 支持協助主動辦理大型國際研討會，邀請重要專家學者座談與演講。

（三） 支持協助爭取重要國際會議在台灣舉行。

附件-7

Promoting Better Health for Young People Through Physical Activity and Sports



A Report to the President From
the Secretary of Health and Human Services
and the Secretary of Education

Fall 2000

ACKNOWLEDGMENTS

This report was prepared by a work group comprising staff from the following offices.

Department of Health and Human Services

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion

Division of Adolescent and School Health

Lloyd J. Kolbe, Ph.D., Director

Sarah L. Merkle, M.P.H., Program Analyst

Howell Wechsler, Ed.D., M.P.H., Health Scientist

Jane A. Zanca, B.A., Technical Writer/Editor

Division of Nutrition and Physical Activity

William H. Dietz, M.D., Ph.D., Director

Charlene R. Burgeson, M.A., Public Health Advisor

Technical Information and Editorial Services Branch

Christine Fralish, M.L.I.S., Chief

Byron Breedlove, M.A., Technical Writer/Editor

Phyllis Moir, M.A., Technical Writer/Editor

Herman Surles, Writer/Editor

Office of the Secretary, Office of Public Health and Science

E. Ripley Forbes, M.A., Senior Advisor to the Assistant Secretary for Health/Surgeon General

President's Council on Physical Fitness and Sports

Sandra P. Perlmutter, Executive Director

Christine G. Spain, M.A., Director, Research, Planning, and Special Projects

Department of Education

Office of Elementary and Secondary Education

Safe and Drug-Free Schools Program

Connie Deshpande, M.P.A., Program Specialist

The full report is available online at **http://www.cdc.gov/nccdphp/dash/presphysactrpt** or from CDC at Healthy Youth, P.O. Box 8817, Silver Spring, MD 20907. Phone: 888-231-6405; Fax: 888-282-7681. E-mail: HealthyYouth@cdc.gov.

Revised December 2000

Promoting Better Health for Young People Through Physical Activity and Sports

A Report to the President From the Secretary of Health and Human Services and the Secretary of Education

CONTENTS

Executive Summary 1

Introduction 5

Background 7

Strategies for Promoting Participation in Physical Activity and Sports Among Young People 13

- Families 15
- School Programs 16
- After-School Care Programs 23
- Youth Sports and Recreation Programs 24
- Community Structural Environment 26
- Media Campaigns 27
- Monitoring Youth Physical Activity and Fitness and School and Community Programs 28

A Call to Action 31

References 33

Promoting Better Health for Young People Through Physical Activity and Sports

Executive Summary

Enhancing efforts to promote participation in physical activity and sports among young people is a critical national priority.

Our nation's young people are, in large measure, inactive, unfit, and increasingly overweight. In the long run, this physical inactivity threatens to reverse the decades-long progress we have made in reducing death from cardiovascular diseases and to devastate our national health care budget. In the short run, physical inactivity has contributed to an unprecedented epidemic of childhood obesity that is currently plaguing the United States. The percentage of young people who are overweight has doubled since 1980.

Physical activity has been identified as one of our nation's leading health indicators in *Healthy People 2010*, the national health objectives for the decade. Enhancing efforts to promote participation in physical activity and sports among young people is a critical national priority. That is why, on June 23, 2000, President Clinton issued an Executive Memorandum directing the Secretary of Health and Human Services and the Secretary of Education to work together to identify and report within 90 days on "strategies to promote better health for our nation's youth through physical activity and fitness." The President concluded his directive: "By identifying effective new steps and strengthening public-private partnerships, we will advance our efforts to prepare the nation's young people for lifelong physical fitness."

To increase their levels of physical activity and fitness, young people can benefit from

- **Families** who model and support participation in enjoyable physical activity.
- **School programs**—including quality, daily physical education; health education; recess; and extracurricular activities—that help students develop the knowledge, attitudes, skills, behaviors, and confidence to adopt and maintain physically active lifestyles, while providing opportunities for enjoyable physical activity.
- **After-school care programs** that provide regular opportunities for active, physical play.
- **Youth sports and recreation programs** that offer a range of developmentally appropriate activities that are accessible and attractive to all young people.

- **A community structural environment** that makes it easy and safe for young people to walk, ride bicycles, and use close-to-home physical activity facilities.
- **Media campaigns** that help motivate young people to be physically active.

Strategies

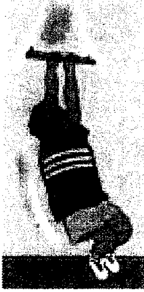
The following strategies are all designed to promote lifelong participation in enjoyable and safe physical activity and sports.

1. Include education for parents and guardians as part of youth physical activity promotion initiatives.
2. Help all children, from prekindergarten through grade 12, to receive quality, daily physical education. Help all schools to have certified physical education specialists; appropriate class sizes; and the facilities, equipment, and supplies needed to deliver quality, daily physical education.
3. Publicize and disseminate tools to help schools improve their physical education and other physical activity programs.
4. Enable state education and health departments to work together to help schools implement quality, daily physical education and other physical activity programs.
   - With a full-time state coordinator for school physical activity programs.
   - As part of a coordinated school health program.
   - With support from relevant governmental and nongovernmental organizations.
5. Enable more after-school care programs to provide regular opportunities for active, physical play.
6. Help provide access to community sports and recreation programs for all young people.
7. Enable youth sports and recreation programs to provide coaches and recreation program staff with the training they need to offer developmentally appropriate, safe, and enjoyable physical activity experiences for young people.
8. Enable communities to develop and promote the use of safe, well-maintained, and close-to-home sidewalks, crosswalks, bicycle paths, trails, parks, recreation facilities, and community designs featuring mixed-use development and a connected grid of streets.
9. Implement an ongoing media campaign to promote physical education as an important component of a quality education and long-term health.

10. Monitor youth physical activity, physical fitness, and school and community physical activity programs in the nation and each state.

Implementation

Full implementation of the strategies recommended in this report will require the commitment of resources, hard work, and creative thinking from many partners in federal, state, and local governments; nongovernmental organizations; and the private sector. Only through extensive collaboration and coordination can resources be maximized, strategies integrated, and messages reinforced. Development or expansion of a broad, national coalition to promote better health through physical activity and sports is an important first step toward collaboration and coordination. A foundation to support the promotion of physical activity could complement the work of the coalition and play a critical role in obtaining the resources needed to help our young people become physically active and fit. The 10 strategies and the process for facilitating their implementation described in this report provide the framework for our children to rediscover the joys of physical activity and to incorporate physical activity as a fundamental building-block of their present and future lives.



INTRODUCTION

America loves to think of itself as a youthful nation focused on fitness. But behind the vivid media images of robust runners, Olympic Dream Teams, and rugged mountain bikers is the troubling reality of a generation of young people that is, in large measure, inactive, unfit, and increasingly overweight.

The consequences of the sedentary lifestyles lived by so many of our young people are grave. In the long run, physical inactivity threatens to reverse the decades-long progress we have made in reducing death and suffering from cardiovascular diseases. A physically inactive population is at increased risk for many chronic diseases, including heart disease, stroke, colon cancer, diabetes, and osteoporosis. In addition to the toll taken by human suffering, surges in the prevalence of these diseases could lead to crippling increases in our national health care expenditures.

Physical inactivity has contributed to an unprecedented epidemic of childhood obesity that is currently plaguing the United States.

In the short run, physical inactivity has contributed to an unprecedented epidemic of childhood obesity that is currently plaguing the United States. The percentage of young people who are overweight has doubled since 1980.[1] Of children aged 5 to 10 who are overweight, 61% have one or more cardiovascular disease risk factors, and 27% have two or more.[2] The negative health consequences linked to the childhood obesity epidemic include the appearance in the past two decades of a new and frightening public health problem: type 2 diabetes *among adolescents.* Type 2 diabetes was previously so rarely seen in children or adolescents that it came to be called "adult-onset diabetes." Now, an increasing number of teenagers and preteens must be treated for diabetes and strive to ward off the life-threatening health complications that it can cause.

Obesity in adolescence also has been associated with poorer self-esteem and with obesity in adulthood. Among adults today, 25% of women and 20% of men are obese.[3] The total costs of diseases associated with obesity have been estimated at almost $100 billion per year, or approximately 8% of the national health care budget.[4]

In January 2000 the nation issued *Healthy People 2010*,[5] its health objectives for the decade. Unlike previous sets of national health objectives, *Healthy People 2010* included a set of leading health indicators—10 high-priority public health areas for enhanced public attention. The fact that the first leading health indicator is physical activity and the second is overweight and obesity speaks clearly to the national importance of these issues.

Enhancing efforts to promote participation in physical activity and sports among young people is a critical national priority. That is why, on June 23, 2000, President Clinton issued a directive to the Secretary of Health

and Human Services and the Secretary of Education to work together to identify and report within 90 days on "strategies to promote better health for our nation's youth through physical activity and fitness" (Appendix 1*).

The President instructed the Secretaries to include in this report strategies for

- Promoting the renewal of physical education in our schools and the expansion of after-school programs that offer physical activities and sports in addition to enhanced academics and cultural activities.
- Encouraging participation by private-sector partners in raising the level of physical activity and fitness among our young people.
- Promoting greater coordination of existing public and private resources that encourage physical activity and sports.

Furthermore, the President directed the Secretaries to work with the United States Olympic Committee (USOC) and other private and nongovernmental sports organizations, as appropriate. The President concluded his directive by saying: "By identifying effective new steps and strengthening public-private partnerships, we will advance our efforts to prepare the nation's young people for lifelong physical fitness."

*The appendices are available on-line at http://www.cdc.gov/nccdphp/dash/presphysactrpt.

Background

Benefits of Physical Activity

The landmark 1996 Surgeon General's report, *Physical Activity and Health,*[6] identified substantial health benefits of regular participation in physical activity, including reducing the risks of dying prematurely; dying prematurely from heart disease; and developing diabetes, high blood pressure, or colon cancer (Appendix 2). When physical inactivity is combined with poor diet, the impact on health is devastating, accounting for an estimated 300,000 deaths per year.[7] Tobacco use is the only behavior that kills more people.

The Surgeon General's report made clear that the health benefits of physical activity are not limited to adults. Regular participation in physical activity during childhood and adolescence

- Helps build and maintain healthy bones, muscles, and joints.
- Helps control weight, build lean muscle, and reduce fat.
- Prevents or delays the development of high blood pressure and helps reduce blood pressure in some adolescents with hypertension.
- Reduces feelings of depression and anxiety.

Through its effects on mental health, physical activity may help increase students' capacity for learning.

Although research has not been conducted to conclusively demonstrate a direct link between physical activity and improved academic performance, such a link might be expected. Studies have found participation in physical activity increases adolescents' self-esteem and reduces anxiety and stress.[6] Through its effects on mental health, physical activity may help increase students' capacity for learning. One study found that spending more time in physical education did not have harmful effects on the standardized academic achievement test scores of elementary school students; in fact, there was some evidence that participation in a 2-year health-related physical education program had several significant favorable effects on academic achievement.[8]

Participation in physical activity and sports can promote social well-being, as well as physical and mental health, among young people. Research has shown that students who participate in interscholastic sports are less likely to be regular and heavy smokers or use drugs,[9] and are more likely to stay in school and have good conduct and high academic achievement.[10] Sports and physical activity programs can introduce young people to skills such as teamwork, self-discipline, sportsmanship, leadership, and socialization. Lack of recreational activity, on the other hand, may contribute to making young people more vulnerable to gangs, drugs, or violence.

One of the major benefits of physical activity is that it helps people improve their physical fitness. Fitness is a state of well-being that allows people to perform daily activities with vigor, participate in a variety of physical activities, and reduce their risks for health problems. Five basic components of fitness are important for good health: cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and body composition (percentage of body fat). A second set of attributes, referred to as sport- or skill-related physical fitness, includes power, speed, agility, balance, and reaction time. Although skill-related fitness attributes are not essential for maintaining physical health, they are important for athletic performance or physically demanding jobs such as military service and emergency and rescue service.

How Much Physical Activity and Fitness Do Young People Need?

The Surgeon General's report on physical activity and health[6] concluded that

- People who are usually inactive can improve their health and well-being by becoming even moderately active on a regular basis.
- Physical activity need not be strenuous to achieve health benefits.
- Greater health benefits can be achieved by increasing the amount (duration, frequency, or intensity) of physical activity.

Rigorous scientific reviews have led to two widely accepted sets of developmentally appropriate recommendations—one for adolescents, the other for elementary school-aged children—for how much and what kinds of physical activity young people need. The International Consensus Conference on Physical Activity Guidelines for Adolescents[11] issued the following recommendations:

- All adolescents should be physically active daily, or nearly every day, as part of play, games, sports, work, transportation, recreation, physical education, or planned exercise, in the context of family, school, and community activities.
- Adolescents should engage in three or more sessions per week of activities that last 20 minutes or more at a time and that require moderate to vigorous levels of exertion.

The developmental needs and abilities of younger children differ from those of adolescents and adults. The National Association for Sport and Physical Education (NASPE) has issued physical activity guidelines for elementary school-aged children[12] that recommend the following:

- Elementary school-aged children should accumulate at least 30 to 60 minutes of age-appropriate and developmentally appropriate physical activity from a variety of activities on all, or most, days of the week.
- An accumulation of more than 60 minutes, and up to several hours per day, of age-appropriate and developmentally appropriate activity is encouraged.
- Some of the child's activity each day should be in periods lasting 10 to 15 minutes or more and include moderate to vigorous activity. This activity will typically be intermittent in nature, involving alternating moderate to vigorous activity with brief periods of rest and recovery.
- Children should not have extended periods of inactivity.

Healthy People 2010,[5] the national initiative that established health objectives for the first decade of this century, includes objectives to increase levels of moderate and vigorous physical activity among adolescents, to increase the proportion of trips made by walking and bicycling, and to decrease the amount of time young people spend watching television (Appendix 3).

Furthermore, *Healthy People 2010* includes participation in physical activity as one of the nation's 10 leading health indicators. Of the two objectives that will be used to measure progress in meeting this indicator, one targets adolescents:

> Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion.

Healthy People 2010 does not specify national objectives related to youth fitness, in part because there is no scientific consensus on which of the various existing fitness tests and classification standards to use. However, there is widespread agreement that fitness tests should emphasize health-related fitness components and that standards for interpreting test results should be based on the relationship between physical activity and health rather than on the results of other students (i.e., norms). This will give all children and adolescents the opportunity to experience success, reinforce the link between fitness and health, and emphasize that one can be fit without being an elite athlete.

The importance of physical activity is reinforced in the 2000 version of the *Dietary Guidelines for Americans*,[13] which forms the basis of all federal nutrition education and promotion activities. One of the guidelines advises Americans to "be physically active each day"; children and teens are advised to aim for at least 60 minutes of moderate physical activity most days of the week, preferably daily.

How Active and Fit Are Our Children and Adolescents?

Available data indicate that young children are among the most active of all segments of the population, but physical activity levels begin to decline as children approach their teenage years and continue to decline throughout adolescence. Even among children and adolescents, however, a substantial proportion of the population does not meet recommended levels of participation in physical activity. The Centers for Disease Control and Prevention's (CDC's) Youth Risk Behavior Surveillance System (YRBSS; Appendix 4) collects data on participation in physical activity from a nationally representative sample of students in grades 9–12. YRBSS data for 1999[14] show that, among U.S. high school students,

- More than one in three (35%) do not participate regularly in vigorous physical activity.
- Regular participation in vigorous physical activity drops from 73% of 9th grade students to 61% of 12th grade students.
- Nearly half (45%) do not play on any sports teams during the year.
- Nearly half (44%) are not even enrolled in a physical education class; enrollment in physical education drops from 79% in 9th grade to 37% in 12th grade.
- Only 29% attend daily physical education classes, a dramatic decline from 1991, when 42% of high school students did so.

National transportation surveys have found that walking and bicycling by children aged 5–15 dropped 40% between 1977 and 1995.[15] More than one-third (37%) of all trips to school are made from one mile away or less, but only 31% of these trips are made by walking.[16] Although an estimated 38 million young people participate in youth sports programs, participation declines substantially as children progress through adolescence.[17] One study found that attrition from youth sports programs was occurring among 10-year-olds and peaked among 14–15-year-olds.[17]

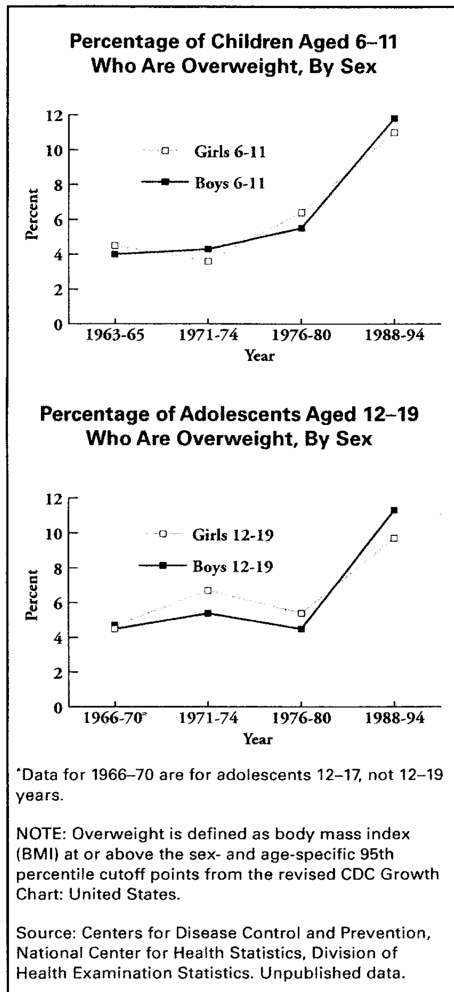
Walking and bicycling by children aged 5-15 dropped 40% between 1977 and 1995.

One factor contributing to low levels of physical activity among young people might be the many hours that they spend doing sedentary activities, most notably using electronic media. A 1999 national survey found that young people aged 2–18 spend, on average, over 4 hours a day watching television, watching videotapes, playing video games, or using a computer. Most of this time—2 hours and 46 minutes per day, on average—is spent watching television. One-third of children and adolescents watch television for more than 3 hours a day, and nearly one-fifth (17%) watch more than 5 hours of television a day.[18]

Physical inactivity has contributed to the 100% increase in the prevalence of childhood obesity in the United States since 1980. According to the National Health and Nutrition Examination Survey (NHANES), between

1976–1980 and 1988–1994, the percentage of U.S. adolescents (aged 12–19) who were overweight increased from 5.4% to 9.7% of girls and 4.5% to 11.3% of boys. The changes among young children (aged 6–11) in the same period were similar, rising from 6.4% to 11.0% of girls and from 5.5% to 11.8% of boys.[1]

The last nationally representative study of youth fitness was conducted in the mid-1980s, but it did not classify children and adolescents based on whether or not they met health-related fitness standards. However, fitness tests administered throughout California in 1999 found that only about one in five students in the fifth, seventh, and ninth grades met the standards for all health-related fitness components and that more than 40% did not meet the minimum fitness standard for cardiorespiratory endurance.[19]



*Data for 1966–70 are for adolescents 12–17, not 12–19 years.

NOTE: Overweight is defined as body mass index (BMI) at or above the sex- and age-specific 95th percentile cutoff points from the revised CDC Growth Chart: United States.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics. Unpublished data.

How Our Society Discourages Physical Activity

Behavior is shaped, in large measure, by one's environment. Our young people live in a social and physical environment that makes it easy to be sedentary and inconvenient to be active. Developments in our culture and society over the past few decades that have discouraged youth physical activity include the following:

- Community design centered around the automobile has discouraged walking and bicycling and has made it more difficult for children to get together to play.
- Increased concerns about safety have limited the time and areas in which children are allowed to play outside.
- New technology has conditioned our young people to be less active, while new electronic media (e.g., video and computer games, cable and satellite television) have made sedentary activities more appealing.
- States and school districts have reduced the amount of time students are required to spend in physical education classes, and many of those classes have so many students that teachers cannot give students the individual attention they need.
- Communities have failed to invest adequately in close-to-home physical activity facilities (e.g., parks, recreation centers).

Strategies for Promoting Participation in Physical Activity and Sports Among Young People

Children and adolescents in the United States *cannot* become more physically active and fit if they don't have a wide range of accessible, safe, and affordable opportunities to be active. However, opportunities alone are not enough: In 21st century America, physical activity is, for the most part, a *voluntary* behavior. Our young people, therefore, *will not* increase their levels of physical activity and fitness unless they are sufficiently motivated to do so. Their motivation to be active will depend on the degree to which they find their physical activity experiences to be *enjoyable.* Enjoyment of physical activity, in turn, will be influenced by the extent to which young people

- Can choose to engage in sports and recreational activities that are most appealing to them.
- Are taught necessary skills.
- Develop confidence in their physical abilities.
- Are guided by competent, knowledgeable, and supportive adults.
- Are supported by cultural norms that make participation in physical activity desirable.

To obtain the opportunities and motivation that will enable them to increase their levels of physical activity and fitness, young people can benefit from

- **Families** who model and support participation in enjoyable physical activity.
- **School programs**—including quality, daily physical education; health education; recess; and extracurricular activities—that help students develop the knowledge, attitudes, skills, behaviors, and confidence to adopt and maintain physically active lifestyles, while providing opportunities for enjoyable physical activity.
- **After-school care programs** that provide regular opportunities for active, physical play.
- **Youth sports and recreation programs** that offer a range of developmentally appropriate activities that are attractive to all young people.
- **A community structural environment** that makes it easy and safe for young people to walk, ride bicycles, and use close-to-home physical activity facilities.
- **Media campaigns** that increase the motivation of young people to be physically active.

The strategies presented in this report are designed to promote lifelong participation in enjoyable and safe physical activity. Special efforts must be made to ensure that programs are responsive to those in greatest need, including girls and racial/ethnic minorities.

Girls are significantly less likely than boys to participate regularly in vigorous physical activity and on sports teams. Among high school students in 1999, 57% of girls participated regularly in vigorous physical activity compared with 72% of boys, and 49% of girls played on a sports team compared with 62% of boys.[14] Despite the tremendous gains girls have made in sports participation during the last 30 years—no doubt due, in large measure, to the 1972 Title IX legislation that prohibited sex discrimination in school athletics—the ratio of female to male participants in interscholastic sports is still only 3:5.[17] Girls join organized sports programs at later ages than boys and drop out at younger ages.[17]

In its 1997 report, *Physical Activity and Sport in the Lives of Girls*,[20] the President's Council on Physical Fitness and Sports (PCPFS) concluded that physical activity has an increasingly important role in the lives of girls, because of both its physical and emotional health benefits. Strategies to increase the amount of physical activity for boys and girls will need to be different, because girls tend to prefer different types of physical activity and pursue it for different reasons than do boys. Since girls are more likely to have lower self-esteem related to their physical capabilities, programs that serve girls should provide instruction and experiences that increase their confidence, offer ample opportunities for participation, and establish social environments that support involvement in a range of physical activities.

Among high school students in 1999, whites were significantly more likely than blacks to report regular participation in physical activity (67% vs. 56%) and more likely than Hispanics to play on sports teams in and out of school (57% vs. 51%).[14] Establishing a physically active lifestyle in adolescence is particularly important for African-Americans and Hispanics because African-American and Hispanic adults are at increased risk for physical inactivity, obesity, and diabetes; African-American adults also are at increased risk for death from heart disease.[5] Resources must be invested in creative, culturally sensitive, linguistically appropriate programs to give all young Americans the opportunities and motivation they need to become more active.

Resources must be invested in creative, culturally sensitive, linguistically appropriate programs to give all young Americans the opportunities and motivation they need to become more active.

Implementation

Implementing strategies to promote youth participation in physical activity and sports will require the commitment of resources from federal, state, and local governments and the private sector, as well as close collaboration among health, education, and youth-serving organizations. National efforts

to implement and sustain activities to promote youth participation in physical activity and sports would benefit from the establishment or enhancement of a coordinating mechanism, such as a national coalition. To measure the progress of a national initiative and guide its management, national systems should be supported to monitor youth physical activity and fitness and programs designed to promote youth physical activity. To help inform policymakers about the importance of this issue, researchers need to document the effects of participation in physical activity, sports, and physical education on desired public health and social outcomes, particularly improved academic performance and reductions in youth violence.

Families

Families play a critical role in shaping a child's physical activity experiences. Opportunities and motivation to be physically active begin in the home. Studies have found that adolescents are more likely to be active if their parents or siblings are active; their parents support their participation in physical activities; and they have access to convenient play spaces, sports equipment, and transportation to sports and recreation programs.[6]

Strategy 1: Include education for parents and guardians as part of youth physical activity promotion initiatives.

Parents and guardians can

- Encourage their children to be active on a regular basis.
- Be physically active role models.
- Set limits on the amount of time their children spend watching television and playing video or computer games.
- Plan and participate in family activities that include physical activity (e.g., walking or bicycling together instead of driving, doing active chores like vacuuming and mowing the lawn, playing outside) and include physical activity in family events such as birthday parties, picnics, and vacations.
- Facilitate participation by their children in school and community physical activity and sports programs.
- Advocate for quality school and community physical activity programs.

Physical education teachers, health education teachers, coaches, and recreation program staff should encourage and enable family involvement in their programs. For example, teachers can assign physical activity-related homework to students that must be done with their families and provide flyers designed for parents that contain information and strategies for promoting physical activity within the family. Coaches and recreation program staff can involve parents in booster clubs and give them advice

on how to help their children stay active and fit. Media campaigns to promote youth physical activity should include messages targeting parents and guardians.

A particularly important channel for educating parents and guardians and their children about youth physical activity is the primary health care provider. Physicians, nurses, and others who provide health services to young people should assess physical activity patterns among their patients, counsel them about physical activity, and refer them to appropriate physical activity programs. Health care providers also should encourage parents to be role models for their children, plan physical activities that involve the whole family, and discuss with their children the value of physical activity.

School Programs

Schools provide many opportunities for young people to engage in physical activity and can play an important role in motivating young people to stay active. As detailed in CDC's *Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People* (Appendix 5),[21] a comprehensive approach to promoting physical activity through schools includes

- Quality, daily physical education.
- Classroom health education that complements physical education by giving students the knowledge and self-management skills needed to maintain a physically active lifestyle and to reduce time spent on sedentary activities such as watching television (Appendix 6).
- Daily recess periods for elementary school students, featuring time for unstructured but supervised play (Appendix 7).
- Extracurricular physical activity programs, especially inclusive, intramural programs and physical activity clubs (e.g., dance, hiking, yoga) that 1) feature a diverse selection of competitive and noncompetitive, structured and unstructured activities, 2) meet the needs and interests of all students with a wide range of abilities, particularly those with limited athletic skills, and 3) emphasize participation and enjoyment without pressure (Appendix 8).

Because school staff members spend a great deal of time with students and have considerable influence over students, they can be powerful role models for physical activity. Although schools cannot dictate the personal behaviors of staff members, they can make it easier for staff to become physical activity role models by sponsoring school-site health promotion programs. School staff also can play an important role in promoting youth physical activity by disseminating information about community-based sports and recreation programs to students and by helping these programs gain access to school facilities outside of school hours.

Quality Physical Education

Physical education is at the core of a comprehensive approach to promoting physical activity through schools. All children, from prekindergarten through grade 12, should participate in quality physical education classes every school day. Physical education helps students develop the knowledge, attitudes, skills, behaviors, and confidence needed to be physically active for life, while providing an opportunity for students to be active during the school day (Appendix 9). Leading professionals in the field of physical education have developed a new kind of physical education that is fundamentally different from the stereotypical "roll out the balls and play" classes of decades past that featured little meaningful instruction and lots of humiliation for students who were not athletically coordinated. Professional associations, academic experts, and many teachers across the country are promoting and implementing quality physical education programs (Appendix 10) that emphasize participation in lifelong physical activity among all students.

All children, from prekindergarten through grade 12, should participate in quality physical education classes every school day.

Quality physical education is not a specific curriculum or program; it reflects, instead, an instructional philosophy that emphasizes

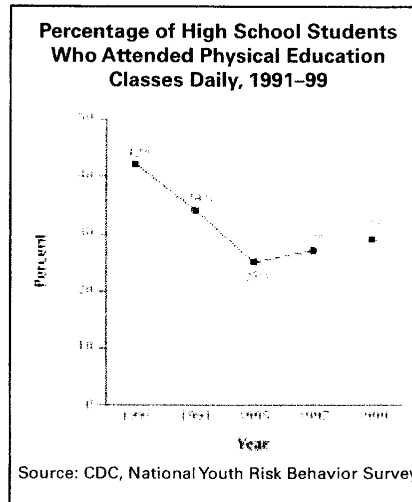
- Providing intensive instruction in the motor and self-management skills needed to enjoy a wide variety of physical activity experiences, including competitive and noncompetitive activities.
- Keeping all students active for most of the class period.
- Building students' confidence in their physical abilities.
- Influencing moral development by providing students with opportunities to assume leadership, cooperate with others, and accept responsibility for their own behavior.
- Having fun!

The importance of making physical education fun was illustrated by a national survey of students in grades 4–12, which found that enjoyment of physical education class was one of the most powerful factors associated with participation in physical activity outside of school.[22]

Quality physical education is more than just fun, however; it is also a serious academic discipline. Physical education and health education are recognized as important components of the education curricula.[23] *The National Standards for Physical Education*[24] explicitly identifies what students should know and be able to do as a result of a quality physical education program (Appendix 11). These standards provide a framework that can be used to design, implement, and evaluate physical education curricula.

To cover the necessary instructional components (Appendix 12) and to provide opportunities for adequate skill practice and health-enhancing

physical activity, quality physical education should be offered every day to all students from prekindergarten through grade 12. Unfortunately, most U.S. students do not participate in daily physical education, and the proportion of students with daily physical education has been declining over time.[14] In 1994, only 17% of middle/junior high schools and 2% of high schools required physical education 5 days per week each year.[25] The majority of high school students take physical education for only 1 year between 9th and 12th grades.[26] *Healthy People 2010*[5] includes objectives for increasing the percentage of schools offering, and the percentage of students participating in, daily physical education classes (Appendix 3).



Percentage of High School Students Who Attended Physical Education Classes Daily, 1991–99

Source: CDC, National Youth Risk Behavior Survey.

Illinois is the only state that currently requires daily physical education in every grade, K–12, but it allows many schools to be exempted from this requirement (Appendix 13).[26] The majority of states allow students to replace physical education courses with other experiences, including varsity athletics, ROTC, and marching band;[25] this deprives students of the important learning experiences they can have in quality physical education. As one educator has written, exempting students from physical education because of their extracurricular activities is like exempting students from language arts requirements because they're on the debate team or from science requirements because they're in the astronomy club.[27] Students should not be exempted from physical education courses because they participate in an extracurricular program.

Strategy 2: Help all children, from prekindergarten through grade 12, to receive quality, daily physical education. Help all schools to have certified physical education specialists; appropriate class sizes; and the facilities, equipment, and supplies needed to deliver quality, daily physical education.

Qualified and appropriately trained physical education teachers are the most essential ingredient of a quality physical education program. Unfortunately, many schools do not have qualified professionals teaching physical education. Only certified physical education teachers should be given the responsibility of teaching the skills and providing the motivation our young people need to adopt and maintain a physically active lifestyle. However, only seven states require physical education courses to be taught by certified physical education specialists in all grades. All the other states allow classroom teachers, without any required training in physical education, to teach some physical education courses.[26] Studies have found that, compared with classroom teachers, physical education specialists teach longer and higher quality classes in which students spend more time being physically active.[21,28]

It must be noted, however, that some certified physical education teachers have not received the state-of-the-art training, either through undergraduate teacher training programs or at professional staff development sessions, that is needed to teach quality physical education. National standards are helpful in describing what a beginning physical education teacher should know and be able to do (Appendix 14).[29] These standards can guide physical education teacher preparation programs and the physical education teacher certification process. Additional resources are needed to effectively disseminate these standards to colleges, universities, and school districts across the nation.

A 1994 national survey found that only half of the nation's school districts had offered any staff development opportunities in physical education during the 2 years before the survey.[25] Efforts to provide staff development for physical educators should be intensified, and guidelines for offering quality professional staff development sessions should be developed.

To provide quality physical education for all students, schools must be able to provide adapted physical education for students with disabilities. The regulations implementing the Individuals with Disabilities Education Act (IDEA) mandate that physical education services, specially designed if necessary, must be made available to every child with a disability receiving a free and appropriate public education. Each child with a disability must be afforded the opportunity to participate in the regular physical education program available to nondisabled children unless the child is enrolled full time in a separate facility or the child needs specially designed physical education, as prescribed in the child's individualized education program. The *Adapted Physical Education National Standards*[30] (Appendix 15) provide guidance on how physical educators can accommodate the needs of students with disabilities, and a national examination exists to certify adapted physical education teachers.

Physical education should have the same class sizes as other subjects.

The large class sizes with which physical educators are often confronted are a key barrier to the implementation of quality physical education. Physical education should have the same class sizes as other subjects. Quality physical education must cover a great deal of content, and physical educators cannot do their jobs effectively or have enough time to work with individual students if classes are overcrowded. As one physical educator has said, "Try teaching English with 72 kids!"[27]

Even the best physical education teachers in the world will find it difficult to keep their students active during most of a physical education class if they don't have adequate amounts of equipment and supplies. Many schools don't have enough equipment or supplies to keep all their students active during physical education class; consequently, many students waste valuable time standing in line and watching others play while they wait for a turn. Support for the purchase of physical education equipment and supplies is an urgent priority for many of the nation's schools.

Strategy 3: Publicize and disseminate tools to help schools improve their physical education and other physical activity programs.

In recent years, federal agencies and national organizations have developed a large number of practical tools that can help schools improve their physical education and other physical activity programs. These tools include

- *Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People* (CDC; Appendix 5).[21]
- *School Health Index for Physical Activity and Healthy Eating: A Self-Assessment and Planning Guide* (CDC; Appendix 16).[31]
- *Moving into the Future: National Standards for Physical Education* (NASPE; Appendix 11).[24]
- *Adapted Physical Education National Standards* (National Consortium for Physical Education and Recreation for Individuals with Disabilities; Appendix 15).[30]
- *National Standards for Beginning Physical Education Teachers* (NASPE; Appendix 14).[29]
- *Concepts of Physical Education: What Every Student Needs to Know* (NASPE).[32]
- *Fit, Healthy, and Ready to Learn: A School Health Policy Guide* (National Association of State Boards of Education; Appendix 17).[27]
- *Physical Fitness Demonstration Centers* (PCPFS; Appendix 18).
- *Programs That Work* (CDC; Appendix 19).
- *Quality Coaches, Quality Sports: National Standards for Athletic Coaches* (NASPE).[33]
- *Guidelines for School Intramural Programs* (National Intramural Sports Council; Appendix 20).[34]
- *The NSACA Standards for Quality School-Age Care* (National School-Age Care Alliance; Appendix 21).[35]
- *Developmentally Appropriate Practice in Movement Programs for Young Children, Ages 3–5* (NASPE).[36]

Many school administrators and educators do not have these materials, and only modest efforts have been made to disseminate them. Relevant Department of Health and Human Services agencies, working in close collaboration with the Department of Education, state and local agencies, and nongovernmental organizations, should implement an ongoing marketing initiative to systematically distribute these resources to the nation's educators at the school district and school levels. Staff development must be provided to ensure the effective use of these tools.

One of the best ways to promote the widespread use of innovative practices and build support for quality school initiatives is to identify model programs that allow educators to learn from the successes of their peers. Two existing federal programs could be expanded to identify model programs:

- PCPFS's *Physical Fitness Demonstration Centers* (Appendix 18) initiative recognizes individual schools that do an outstanding job of emphasizing the physical fitness component of physical education, as determined by state departments of education according to criteria developed in cooperation with PCPFS. Expanding this initiative to more schools in more states would facilitate the dissemination of innovative practices.
- CDC's *Programs That Work* initiative (Appendix 19) identifies curricula with credible evidence of effectiveness in reducing health risk behaviors among young people. Training on implementing these curricula is provided for interested educators from state and local education agencies, departments of health, and national non-governmental organizations. To date, curricula have been identified that address tobacco-use prevention and HIV, sexually transmitted diseases (STDs), and pregnancy prevention. Expanding this initiative to include programs that promote physical activity would help states and school districts make more informed curricular decisions.

Perhaps the most urgently needed tool that has not yet been developed is a standardized assessment of student performance in physical education. Such a tool would measure achievement in knowledge, motor skills, and self-management skills. It could

- Help educators monitor and improve the quality of physical education programs.
- Provide a means of holding programs accountable.
- Enable physical education to be included among the subjects on which students are tested as part of the state education assessments that are increasingly driving school management decisions.

Without the data on student performance that such a tool could provide, physical education will continue to be relegated to a low priority in school reform efforts.

Most states have not developed assessments of student performance in physical education and have not included physical education among the subjects that all schools must assess. NASPE has developed materials that could guide an assessment process, and several states have independently begun to develop their own assessments. These efforts should be supported and final products should be widely disseminated by relevant Department

of Health and Human Services agencies, in collaboration with the Department of Education, state and local agencies, and nongovernmental organizations.

Strategy 4: Enable state education and health departments to work together to help schools implement quality, daily physical education and other physical activity programs

- ***With a full-time state coordinator for school physical activity programs.***
- ***As part of a coordinated school health program.***
- ***With support from relevant governmental and nongovernmental organizations.***

Without a qualified, dedicated person coordinating efforts in each state, a national initiative to promote physical activity among young people will inevitably fall through the cracks . . .

Most states do not have physical education specialists at their state education agencies who can provide technical assistance to help schools implement quality physical education. A full-time coordinator for school physical activity programs in each state would play an important role in implementing the essential staff development, resource dissemination, student assessment, monitoring, and evaluation recommendations made in this report. He or she would also guide efforts to collaborate with and reinforce the complementary initiatives of relevant governmental and nongovernmental organizations (e.g., Governor's or State Council for Physical Fitness and Sports; American Heart Association; state affiliate of the American Alliance for Health, Physical Education, Recreation, and Dance). Without a qualified, dedicated person coordinating efforts in each state, a national initiative to promote physical activity among young people will inevitably fall through the cracks and fail to get the statewide attention needed to make a difference.

To maximize impact and efficiency, physical activity efforts should be integrated within a state's coordinated school health program. Other components of such a program include health education; nutrition services; health services; counseling, psychological, and social services; parent and community involvement; health promotion for staff; and a healthy school environment.

In fiscal year 2000, CDC funded 21 states to establish and run statewide programs for coordinated school health (Appendix 22). Funding is provided for program directors in the state education and health agencies, but not for a state school physical activity coordinator. With additional resources, this initiative could be expanded to support the remaining states and to include a physical activity coordinator in each state.

The President's reauthorization proposal for the Elementary and Secondary Education Act includes funding for demonstration projects that would

implement effective policies and programs to promote lifelong physical activity and healthy lifestyles among young people. This initiative also would support funding for

- Training school personnel on how to provide instructional programs to promote enjoyable lifelong physical activity among children and adolescents.
- Capacity-building activities to expand existing state and local coordinated school health programs to promote healthy lifestyles among children and adolescents.
- Providing school staff with continuing education opportunities related to physical activity and coordinated school health programs.

After-School Care Programs

With nearly two-thirds of school-aged children and adolescents living with a single employed parent or two parents who are both employed,[37] the need for programs to take care of children outside of school hours is great. Almost 30% of public schools and 50% of private schools offered before- and/or after-school care in 1993–1994.[38] Many out-of-school programs are now taking care of students before school, after school, and during weekends, school holidays, and summer vacation. These programs are often called Expanded Learning Opportunities, Extra Learning Opportunities, or Community Learning Centers to make the point that they build on what students have learned during the school day and provide enrichment activities based on a student's strengths or interests. These programs offer a variety of activities, including sports, free play, dance, art, tutoring or homework help, mentoring, and community service. A 1999 Department of Justice report concluded that after-school recreation programs may be a promising approach to preventing delinquency and crime.[39]

After-school care programs can provide substantial amounts of health-enhancing physical activity and opportunities to practice skills taught in physical education courses.

Strategy 5: Enable more after-school care programs to provide regular opportunities for active, physical play.

After-school care programs can provide substantial amounts of health-enhancing physical activity and opportunities to practice skills taught in physical education courses. *The NSACA Standards for Quality School-Age Care*[35] calls upon programs to offer children "regular opportunities for active, physical play" (Appendix 21).

The U.S. Department of Education's 21st Century Community Learning Centers Program provides grants to inner-city and rural communities to offer school-based expanded learning opportunities, including before-school, after-school, weekend, and summer programming. Funding for the program increased from $40 million in 1998 to $453 million in 2000; 2,253 communities applied for grants in FY 2000, and 903 grants were awarded, serving 650,000 children in approximately 3,600 public schools.

Although most of the 21st Century Community Learning Centers include some kind of recreational activities, after-school care programs need guidelines, training, technical assistance, and financial incentives to help them provide physical activity opportunities that are developmentally appropriate, safe, and enjoyable. Physical activity can be more strongly encouraged through this program, which should be expanded to meet the tremendous need for after-school services in communities nationwide.

Youth Sports and Recreation Programs

Youth sports and recreation programs are one of the primary approaches through which communities can increase physical activity and fitness among young people. Youth sports refers to organized athletic programs that provide a systematic sequence of practices and contests for children and adolescents. These programs are typically sponsored by nationally affiliated sports organizations (e.g., Amateur Athletic Union, Little League Baseball, United States Tennis Association, United States Youth Soccer Association), community centers (e.g., YMCA, YWCA), and local recreation departments. Youth sports experiences differ greatly in competitive level, length of season, cost to competitors, qualifications of coaches and officials, and skill levels of athletes. Community centers and recreation departments also offer recreation programs that are not competitive, such as instruction (e.g., in swimming or martial arts), group activities (e.g., aerobics workouts), access to fitness equipment (e.g., weight lifting, stationary bicycles), and "open gym" (e.g., running on a track, shooting baskets).

Communities should support and coordinate youth sports and recreation programs so that they provide a variety of sport and recreational activities that meet the needs of all young people, regardless of age, sex, race/ethnicity, or ability. Programs that only offer a limited set of team sports and do not also provide noncompetitive, lifetime fitness and recreational activities (e.g., running, bicycling, dancing, swimming) do not adequately serve the many young people who are less skilled, less physically fit, or not attracted to team sports. Communities also must develop and offer adapted sports and recreation programs that meet the needs of young people with disabilities.

Strategy 6: Help provide access to community sports and recreation programs for all young people.

Although sports and recreation programs for young people exist in most communities, it is extremely difficult to start and even more difficult to sustain these programs in certain communities, such as public housing and inner-city neighborhoods, Native American lands, and rural areas.[17,21] The nation should ensure that all young people, irrespective of their family's income or the community in which they live, have access to youth sports

and recreation programs and the equipment and supplies needed to participate in such programs.

Many young people are not able to participate in youth sports and recreation programs because they have no means, or no safe means, of getting to the programs from home or school and getting home afterwards. Sports and recreation program directors cite this transportation problem as one of the most critical barriers to youth participation in their programs. Transportation difficulties affect a wide variety of young people, including those who live in low-income, urban communities and those who live in rural areas, as well as those who are part of single-parent families and those who have two parents who work outside the home. This barrier should be overcome to make sports and recreation programs accessible for all of our young people.

Community recreation programs have attempted to address the transportation problem in a number of ways, including

- Having the public bus system take children to local swimming pools at no charge.
- Purchasing buses to transport children to and from program activities.
- Taking vans with physical activity equipment (i.e., mobile recreation units) into neighborhoods that do not have access to physical activity facilities.
- Establishing sports leagues near public housing communities to eliminate the need for transportation.

Training for coaches should emphasize teaching young people ... about responsibility, leadership, nonviolent conflict resolution, sportsmanship, integrity, and cooperation.

Strategy 7: Enable youth sports and recreation programs to provide coaches and recreation program staff with the training they need to offer developmentally appropriate, safe, and enjoyable physical activity experiences for young people.

The quality of any youth sports and recreation experience depends on the competence and supportiveness of its adult program leaders, particularly the coaches. Approximately 2.5 million adults generously volunteer their time each year as coaches of youth sports teams. The commitment of these individuals provides a vital source of support for our young people. However, many coaches have no formal education in coaching techniques, first aid, injury prevention, or emergency care.[17] A variety of excellent sport-specific training programs and standards for coaches, as well as *National Standards for Athletic Coaches,*[33] are available.

Training for coaches should emphasize teaching young people not only about sports skills and lifetime physical activity, but also about responsibility, leadership, nonviolent conflict resolution, sportsmanship, integrity, and cooperation. It is important that all youth coaches be offered and

encouraged to take formal educational courses offered by local recreation departments or sports-specific organizations. Better-trained coaches will enhance enjoyment of the team sports experience for young people, increase retention rates among participants, and help to reduce sports-related injuries.

Community Structural Environment

A community structural environment that supports physical activity is one with

- An abundance of accessible, well-lit, and safe sidewalks, bicycle paths, trails, and crosswalks to facilitate walking and bicycling.
- Sports and recreation facilities that are close to the homes of most residents, well-maintained, and safe.
- Programs in place to motivate community members to walk, bicycle, and use the sports and recreation facilities.

Strategy 8: Enable communities to develop and promote the use of safe, well-maintained, and close-to-home sidewalks, crosswalks, bicycle paths, trails, parks, recreation facilities, and community designs featuring mixed-use development and a connected grid of streets.

Research has found that moderate physical activity, such as walking and bicycling, offers substantial health benefits.[6] Walking is, in many ways, an ideal form of physical activity. It's easy to do, requires no special skills or equipment, can be done by the vast majority of the population with little risk of injury, and is functional: It gets us places. Unfortunately, young people today do not have the opportunities for walking that previous generations had. Since the late 1940s, community and transportation development practices have focused on increasing the efficiency of automobile use. Sidewalks, bicycle paths, and crosswalks are practically nonexistent in many communities developed since the 1960s.

A small increase in the percentage of trips that are walked rather than driven could result in significant public health benefits.

Nearly 25% of the trips made from home in our nation cover a distance less than one mile, but 75% of those trips are made by automobile.[15] A small increase in the percentage of trips that are walked rather than driven could result in significant public health benefits. Research has found that people walk more when they live in communities that have greater housing and population density and more street connectivity (i.e., streets lead to other streets and stores, rather than just ending in cul-de-sacs).[40] Research also shows that people are more active in neighborhoods that are perceived as safe and that have recreational facilities nearby.[41]

Communities need funding, guidelines, model programs, and ongoing technical assistance to implement these strategies. Departments of transportation, city planning, parks and recreation, law enforcement, public

health, and education all should collaborate in these efforts. Department of Health and Human Services agencies can support studies that examine the effects of community infrastructure changes on physical activity, physical fitness, environmental quality, and social connectedness. Such studies will provide valuable information that can be used to document the importance of having a community infrastructure that supports physical activity.

One existing mechanism for promoting walking, bicycling, and accessible recreation facilities is the CDC's Active Community Environments initiative (Appendix 23). This initiative has focused on helping communities to promote walking to school (Appendix 24) and to develop close-to-home parks and recreational facilities.

One of the major barriers to youth participation in physical activity is a lack of access to sports and recreation facilities.[42] Increased access to school facilities would, therefore, help facilitate increases in physical activity among young people. School districts should work with youth sports and recreation programs to take maximum advantage of school facilities for the benefit of children, adolescents, and the community as a whole.

Media Campaigns

Young people today belong to a multimedia generation. The average child spends more than 4 hours a day using electronic media.[18] Although this staggering amount of media use poses certain problems, it also creates an opportunity: Young people are a willing audience that can be reached through a variety of media. Communicating to young people through an ongoing, well-designed multimedia campaign can play an important role in increasing their motivation to be physically active.

Strategy 9: Implement an ongoing media campaign to promote physical education as an important component of a quality education and long-term health.

This campaign must take advantage of all that communication and marketing experts have learned about how to develop effective mass media messages. Testing messages for appeal and appropriateness with different groups is essential, as is involving young people in all aspects of campaign planning and implementation. Special efforts should be made to reach out to those population segments in greatest need, including girls and members of racial/ethnic minority groups. Culturally and linguistically appropriate messages should be designed for these groups and delivered through targeted communication channels. Communication to parents, educators, and health care professionals also should be a central part of this campaign.

While the campaign should take advantage of traditional media (e.g., television and radio ads), it should also target the new media (e.g., Internet-

based activities) that are so popular with young people. The same integrated communication tactics that are employed by leading marketers (e.g., movie promotion campaigns using ads, news media outreach, events, and appropriate product tie-ins) might be tried. A national media campaign should be integrated with state and local efforts.

A national media campaign should be integrated with state and local efforts.

The USOC can play a valuable role in this initiative by identifying and coordinating the participation of Olympic and Paralympic athletes in public appearances and advertisements promoting physical fitness. In addition, the PCPFS should work with professional sports leagues to mount a targeted effort to promote quality, daily physical education in our nation's schools.

Monitoring Youth Physical Activity and Fitness and School and Community Programs

The nation needs an ongoing mechanism for measuring progress in promoting youth physical activity and fitness and in providing the school- and community-based programs that will make this possible. In addition, research should be conducted to document the effects of participation in physical activity, sports, and physical education on desired public health and social outcomes, including improved academic performance and reductions in youth violence.

Strategy 10: Monitor youth physical activity, physical fitness, and school and community physical activity programs in the nation and each state.

An existing monitoring system, CDC's Youth Risk Behavior Surveillance System (YRBSS), monitors health risk behaviors, including physical inactivity, among representative samples of high school students across the nation, in most states, and in many large cities. Reports are issued every other year (Appendix 4). YRBSS data are used to monitor Healthy People objectives, as well as state and local initiatives. The YRBSS should be maintained and expanded to include more states and cities.

No national health objectives relate to youth physical fitness, in part because no system exists to monitor youth physical fitness. Fitness was last measured in a nationally representative sample of young people in 1984 and 1986, through the National Children and Youth Fitness Study.[43,44] That study provided a wealth of data on youth fitness and enabled scientists to establish age- and sex-specific health-related fitness norms. A new, ongoing national fitness monitoring system would enable us to document changes in the fitness status of American youth, establish national objectives for youth fitness, and measure progress in meeting those objectives. Measuring youth fitness requires the administration by trained personnel of a variety of tests to assess the various components of health-related physical fitness. Because of the relative complexity of such a study, data should be collected at 5-year intervals.

An existing monitoring system, CDC's School Health Policies and Programs Study (SHPPS) (Appendices 25 and 26), provides nationally representative information about physical activity policies and programs at the state, district, and school levels, as well as nationally representative data on physical education classes. Data were collected in 1994 and 2000. SHPPS should be maintained and a simpler monitoring mechanism put in place to collect data on representative samples of schools in each state.

All advocates of physical activity for young people would benefit from well-implemented studies that document the effects of physical education and other physical activity programs on youth physical activity and fitness levels and other desired social outcomes. Information from these kinds of studies could help policymakers appreciate the importance of these programs. In particular, research is needed to document the effects of participation in physical activity, sports, and physical education on academic performance and youth violence.

Schools and community organizations often lack the technical expertise needed to evaluate the effectiveness of their programs. Schools and communities need guidelines, materials, and ongoing technical assistance to help them appropriately document outcomes generated by their initiatives.

A CALL TO ACTION

Full implementation of the strategies recommended in this report will require the commitment of resources, hard work, and creative thinking from many partners in federal, state, and local governments; nongovernmental organizations; and the private sector. Only through extensive collaboration and coordination can resources be maximized, strategies integrated, and messages reinforced.

The following actions should be taken to facilitate the process of implementing the 10 strategies identified in this report:

- The federal government will convene a working group to develop a detailed implementation plan to promote physical activity among young people. The Secretary of Health and Human Services, in collaboration with the Secretary of Education, will bring together key players from national, state, and local levels and from the public and the private sectors to work together to achieve the strategies recommended in this report (Appendix 27).
- National nongovernmental organizations and the private sector should work together to develop or expand a national coalition to promote physical activity and a foundation to support its efforts.
- National, state, and local leaders should encourage concerned citizens to work together to establish state and local councils or coalitions to promote physical activity among young people.
- The President, the Secretary of Health and Human Services, the Secretary of Education, and the nation's governors and mayors should educate the American public in general, and educational policymakers in particular, about the importance of having all children participate in quality, daily physical education.

The Secretary of Health and Human Services and the Secretary of Education can facilitate progress in efforts to promote youth physical activity by providing annual reports to the President on actions taken to implement the strategies identified in this report.

Development or expansion of a broad, national coalition to promote better health through physical activity and sports is an important first step toward collaboration and coordination. An effective national coalition will draw public attention to the need for action, educate the public and policymakers about the strategies recommended in this report, and develop coordinated initiatives to implement the strategies. A number of national coalitions currently exist to promote physical activity or fitness (Appendix 28), and a merger of these, or an intensive expansion of participation in one of them, would initiate a national coordinating mechanism. Among the organizations that should be added to such a national coalition are the

USOC and the professional sports leagues. A foundation to support promotion of physical activity could complement the work of the coalition and play a critical role in obtaining the resources needed to help our young people become physically active and fit.

Physical activity is crucial to our health, happiness, and well-being. The staggering consequences of decreases in physical activity are clear: soaring rates of obesity and diabetes, potential future increases in heart disease, and devastating increases in health care costs. We now have the opportunity to reshape our sedentary society into one that facilitates and promotes participation in physical activity during childhood, throughout adolescence, and into adulthood. The 10 strategies and the process for facilitating their implementation described in this report provide the foundation for our children to rediscover the joys of physical activity and to incorporate physical activity as a fundamental building block of their present and future lives.

REFERENCES

1. National Center for Health Statistics. Health, United States, 2000. With adolescent health chartbook. Table 69, updated on 07/27/00. Online at http://www.cdc.gov/nchs/products/pubs/pubd/hus/tables/2000/updated/00hus69.pdf.

2. Freedman DS, Dietz WH, Srinivasan SR, Berenson GS. The relation of overweight to cardiovascular risk factors among children and adolescents: the Bogalusa heart study. Pediatrics 1999;103:1175–82

3. Flegal KM, Carroll MD, Kuczmarski RJ, Johnson CL. Overweight and obesity in the United States: prevalence and trends, 1960-1994. International Journal of Obesity 1998;22(1):39–47.

4. Wolf AM, Colditz GA. Current estimates of the economic cost of obesity in the United States. Obesity Research 1998;6(2):97–106.

5. U.S. Department of Health and Human Services. Healthy People 2010: understanding and improving health. Washington, DC: U.S. Department of Health and Human Services, Government Printing Office, 2000.

6. U.S. Department of Health and Human Services. Physical activity and health: a report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.

7. McGinnis JM, Foege WH. Actual causes of death in the United States. Journal of the American Medical Association 1993;270(18):2207–12.

8. Sallis JF, McKenzie TL, Kolody B, Lewis M, Marshall S, Rosengard P. Effects of health-related physical education on academic achievement: project SPARK. Research Quarterly for Exercise and Sport 1999;70(2):127–34.

9. Escobedo LG, Marcus SE, Holtzman D, Giovino GA. Sports participation, age at smoking initiation and the risk of smoking among US high school students. Journal of the American Medical Association 1993;269:1391–5.

10. Zill N, Nord CW, Loomis LS. Adolescent time use, risky behavior and outcomes: an analysis of national data. Rockville, MD: Westat, 1995.

11. Sallis JF, Patrick K. Physical activity guidelines for adolescents: consensus statement. Pediatric Exercise Science 1994;6:302–14.

12. Corbin CB, Pangrazi RP. Physical activity for children: a statement of guidelines. Reston, VA: National Association for Sport and Physical Education, 1998.

13. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Nutrition and your health: dietary guidelines for Americans (5th ed). Washington, DC: U.S. Department of Agriculture and U.S. Department of Health and Human Services, Government Printing Office, 2000.

14. Centers for Disease Control and Prevention. Youth risk behavior surveillance—United States, 1999. Morbidity & Mortality Weekly Report 2000;49(SS-5):1–94.

15. U.S. Department of Transportation, Federal Highway Administration, Research and Technical Support Center. Nationwide personal transportation survey. Lantham, MD: Federal Highway Administration, 1997.

16. Calculations from the 1995 Nationwide Personal Transportation Survey (S. Ham, unpublished data, 2000).

17. Seefeldt VD, Ewing ME. Youth sports in America: an overview. President's Council on Physical Fitness and Sports Research Digest 1997;2(11):1–12.

18. Kaiser Family Foundation. Kids & media @ the new millenium [monograph]. Menlo Park, CA: Kaiser Family Foundation, November 1999.

19. California Department of Education, Standards and Assessment Division. California physical fitness test 1999: report to the governor and legislature. Sacramento, CA: California Department of Education, 1999.

20. The President's Council on Physical Fitness and Sports. Physical activity and sport in the lives of girls: physical and mental health dimensions from an interdisciplinary approach. Washington, DC: President's Council on Physical Fitness and Sports, 1997.

21. Centers for Disease Control and Prevention. Guidelines for school and community programs to promote lifelong physical activity among young people. Morbidity & Mortality Weekly Report 1997;46(RR-6):1–36.

22. Sallis JF, Prochaska JJ, Taylor WC, Hill JO, Geraci JC. Correlates of physical activity in a national sample of girls and boys in grades 4 through 12. Health Psychology 1999;18:410–5.

23. Johnson J, Deshpande C. Health education and physical education: disciplines preparing students as productive, healthy citizens for the challenges of the 21st century. Journal of School Health 2000;70(2):66–8.

24. National Association for Sport and Physical Education. Moving into the future: national standards for physical education. Reston, VA: National Association for Sport and Physical Education, 1995.

25. Centers for Disease Control and Prevention. Physical education. From CDC's 1994 School Health Policies and Programs Study [fact sheet]. Atlanta, GA: Centers for Disease Control and Prevention, 1999.

26. National Association for Sport and Physical Education. Shape of the nation report: a survey of state physical education requirements. Reston, VA: National Association for Sport and Physical Education, 1998.

27. National Association of State Boards of Education. Fit, healthy and ready to learn: a school health policy guide; Part I: physical activity, healthy eating and tobacco-use prevention. Alexandria, VA: National Association of State Boards of Education, 2000.

28. Sallis JF, McKenzie TL, Alcaraz JE, Kolody B, Faucette N, Hovell M. The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. American Journal of Public Health 1997;87:1328–34.

29. Beginning Teacher Standards Task Force of the National Association for Sport and Physical Education. National standards for beginning physical education teachers. Reston, VA: National Association for Sport and Physical Education, 1995.

30. National Consortium for Physical Education and Recreation for Individuals with Disabilities. Adapted physical education national standards. Champaign, IL: Human Kinetics, 1995.

31. Centers for Disease Control and Prevention. School health index for physical activity and healthy eating: a self-assessment and planning guide. Atlanta, GA: Centers for Disease Control and Prevention, 2000.

32. Mohnsen B (ed). Concepts of physical education: what every student needs to know. Reston, VA: National Association for Sport and Physical Education, 1998.

33. National Association for Sport and Physical Education. Quality coaches, quality sports: national standards for athletic coaches. Reston, VA: National Association for Sport and Physical Education, 1995.

34. National Intramural Sports Council. Guidelines for school intramural programs. Reston, VA: National Association for Sport and Physical Education, 1995.

35. National School-Age Care Alliance. The NSACA standards for quality school-age care. Boston: National School-Age Care Alliance, 1998.

36. National Association for Sport and Physical Education. Developmentally appropriate practice in movement programs for young children ages 3–5. Reston, VA: National Association for Sport and Physical Education, 1994.

37. U.S. Bureau of the Census. March 1998 CPS, P20-514, Table 6, 1998. Online at http://www.census.gov/prod/99pubs/p20-514u.pdf.

38. DeAngelis K, Rossi R. Schools serving family needs: extended-day programs in public and private schools. Washington, DC: National Center for Education Statistics, 1997.

39. Catalano RF, Loeber R, McKinney KC. School and community interventions to prevent serious and violent offending. Juvenile Justice Bulletin, October 1999:1–12.

40. Rutherford GS, McCormack E, Wilkinson M. Travel aspects of urban form: implications from an analysis of two Seattle area travel diaries. Presented at the TMIP Conference on Urban Design, Telecommunications and Travel Forecasting. 1998.

41. Centers for Disease Control and Prevention. Neighborhood safety and the prevalence of physical inactivity—selected states, 1996. Morbidity & Mortality Weekly Report 1999;48(7):143–6.

42. Carnegie Council on Adolescent Development. A matter of time: risk and opportunity in the out-of-school hours. Recommendations for strengthening community programs for youth. New York, NY: Carnegie Corporation of New York, 1994.

43. U.S. Department of Health and Human Services. National children and youth fitness study. Journal of Physical Education, Recreation, and Dance 1985;56:44–90.

44. U.S. Department of Health and Human Services. National children and youth fitness study II. Journal of Physical Education, Recreation, and Dance 1987;58:49–96.

List of Appendices

1. The President's Memorandum/Directive
2. A Report of the Surgeon General: Physical Activity and Health, At-A-Glance
3. Healthy People 2010 Physical Activity and Fitness Objectives Relevant for Children and Adolescents
4. Youth Risk Behavior Surveillance System (fact sheet)
5. CDC's Guidelines for School and Community Programs: Promoting Lifelong Physical Activity, An Overview
6. Classroom Health Education
7. Recess Periods
8. Extracurricular Physical Activity Programs
9. Why Children Need Physical Education
10. Characteristics of Quality Physical Education
11. Moving Into the Future: National Standards for Physical Education (brochure)
12. Suggested Instructional Themes in Physical Education
13. Shape of the Nation: Executive Summary
14. National Standards for Beginning Physical Education Teachers
15. Adapted Physical Education National Standards
16. School Health Index for Physical Activity and Healthy Eating: A Self-Assessment and Planning Guide (brochure)
17. Fit, Healthy, and Ready to Learn: A School Health Policy Guide (fact sheet)
18. Physical Fitness Demonstration Centers (fact sheet)
19. Programs That Work (fact sheet)
20. Guidelines for School Intramural Programs
21. The NSACA Standards for Quality School-Age Care: Standards, At-A-Glance
22. School Health Programs: An Investment in Our Nation's Future, At-A-Glance
23. Active Community Environments (fact sheet)
24. KidsWalk-to-School: A Guide to Promote Walking to School (brochure)
25. Fact Sheet: Physical Education (From CDC's 1994 School Health Policies and Programs Study)

26. SHPPS 2000: School Health Policies and Programs Study (fact sheet)
27. Action Steps
28. National Coalitions

Promoting Physical Activity
A Guide for Community Action

A Step-by-Step Guide to Communitywide Behavior Change

Audiences: State and local governments, transportation, health and community planners, exercise specialists and health professionals, community groups, businesses, schools, colleges and universities, recreational programs and community leagues, social service organizations, and any other professionals or volunteers who wish to promote physical activity and healthier lifestyles in their community, agency, or organization.

We now know that moderate amounts of physical activity are essential for good health, and yet only 40% of our population are regularly physically active. What can you do as a professional to help people become physically active not only for tomorrow, but for a lifetime?

Promoting Physical Activity shows you how to facilitate behavior change both from an individual and a community perspective. Using a social marketing and behavioral science approach to intervention planning, the text guides you step-by-step in addressing your target population's understanding and skills, the social networks, the physical environments in which they live and work, and the policies that most influence their actions. By discovering what matters most to the people you want to reach, you'll be able to create physical activity programs and messages that your specific audience wants, needs, and is ready for.

Whether you've just become interested in promoting physical activity or are an experienced professional looking for ways to improve existing programs, this user-friendly guide has something for you: creative, fresh ideas for promoting physical activity in your community, workplace, school, or health care facility; practical examples of situations similar to those you may face, drawn from a variety of settings; helpful hints on how to create a positive environment where physical activity is accessible, safe, affordable, and fun; extensive information on sources you can turn to for additional help.

Promoting Physical Activity
A Guide for Community Action

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention

and Health Promotion
Division of Nutrition and Physical Activity
1999 - Paperback - Approx 408 pp - BCDC0152
ISBN 0-7360-0152-2
$35.00 (£60.50 Canadian)

To obtain a copy of this publication, you may contact

Human Kinetics
P.O. Box 5076
Champaign, IL 61825-5076
Phone: (800) 747 - 4457 or (217) 351 - 5076

In Canada:
Human Kinetics
475 Devonshire Road, Unit 100
Windsor, Ontario N8Y 2L5
Phone: (800) 465 - 7301

Related Information

- Nutrition and Physical Activity Publications

This page last updated November 25, 2002

United States Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Division of Nutrition and Physical Activity

Press Release Archive

National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older

Nation's Health And Aging Organizations Join Together To Help Older Americans Get Active

Report Says Those 50 and Older Cannot Do It Alone; Communities, Workplace and Policies Need to Change.

Washington, D.C. (May 1, 2001) — In a report released today, several of the nation's most prominent health and aging organizations called for a wholesale rethinking of the way American institutions deal with the health of one of the country's fastest growing populations.

The report, *National Blueprint: Increasing Physical Activity Among Adults Aged 50 and Older*, represents a renewed and aggressive commitment to meet the challenges of enabling mid-life and older Americans to be more physically active. Contributors to the development of the report include the AARP, the American College of Sports Medicine, the American Geriatrics Society, the Centers for Disease Control and Prevention, The National Institute on Aging, and The Robert Wood Johnson Foundation.

"This is a society-wide call to action. We need fresh ideas and community innovations to help make physical activity a vital part of our lives," says J. Michael McGinnis, M.D., senior vice president and director of the health group at The Robert Wood Johnson Foundation. "You can bombard people with all the ads and devices you want, but if they do not have sidewalks to walk on, positive reinforcement from healthcare providers, or time in their busy days for physical activity, they will not commit to an active lifestyle."

The benefits of a physically active lifestyle are well documented. Those older adults who practice regular physical activity tend to have improved cardiovascular health, better balance, and increased joint mobility. Yet, according to statistics from the Centers for Disease Control and Prevention, approximately 34% of the population age 50 and older is sedentary. The Surgeon General reports that 33% of men and 50% of women age 75 and older engage in no leisure time physical activity.

"The *Blueprint* is the first step in a process that we believe will mobilize mid-life and older adults and the systems that serve them," adds Wojtek Chodzko-Zajko, Ph.D., head of the Department of Kinesiology at the University of Illinois at Urbana-Champaign and chairman of the American College of Sports Medicine's Active Aging Partnership. "It encourages health and social service organizations and agencies to channel resources and work collaboratively to move toward national action."

In a number of areas, among them research, the home and community, the workplace, health care systems, and the policy arena, the report cites recommendations for overcoming barriers to physical activity among adults 50 and over. The recommendations include:

Research — Identify and promote the impact the country's most activity-friendly communities have on quality of life of older Americans.

Home and Community — Design a health-impact assessment to help communities measure how well they serve the health needs of their citizens.

Workplace — Establish employer tax incentives based on the physical activity opportunities they offer their employees.

Health Care Systems — Require health care professionals to go through more training on physical activity in older populations.

Policy Arena — Provide incentives to states and communities that increase physical activity among older residents.

The report cites data from the National Institute on Aging that notes by the year 2030, 20% of Americans, about 70 million people, will have passed their 65th birthday. That is nearly double the number of people aged 65 or older in the year 2000. The impact of this shift on health systems, the economy, the workplace, community systems and other sectors of the society will be considerable.

The Blueprint appears in a special supplement of the May 1 issue of the *Journal on Physical Activity and Aging*. It is also available online at www.rwjf.org.* The release of the report coincides with National Older Americans Month, National Physical Fitness and Sports Month, National Osteoporosis Month, and National Hypertension Month.

Additional Comments from National Blueprint Steering Committee Members

"AARP recognizes that as we age, exercise can help us retain the ability to do the tasks we once took for granted. We are pleased to be part of this collaborative effort, which AARP believes will be a strong step in helping older Americans to be healthy and active. AARP is committed to helping those age 50 and above stay in shape and have some fun." — **Bill Novelli, AARP Associate Executive Director**

"The American College of Sports Medicine is pleased to be involved in the *National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older* partnership. ACSM has made a firm organizational commitment to research, education, and clinical programming in the area of aging and physical activity. Through our own efforts and with our *Blueprint* partners, ACSM plans to address the major societal, environmental, and policy factors that together serve to reduce levels of physical activity for us all, and particularly for older adults." — **Priscilla M. Clarkson, Ph.D., FACSM, President, American College of Sports Medicine**

"People who get active or stay active as they age are more secure on their feet, safer in their homes, and most importantly, remain independent longer. The American Geriatrics Society urges physicians to encourage their patients to walk, dance, swim, or exercise in groups to stay healthier longer." — **James E. Fanale, M.D., President of The American Geriatrics Society**

"The new *Blueprint* on physical activity and health sends a strong message that regular physical activity is important to promote health and reduce chronic diseases among individuals 50 years of age and older. There are many things that individuals can do to be physically active, but most of all it is important to choose activities that one enjoys, such as walking, gardening, bicycling or swimming and doing them regularly, several days a week." — **Jeffrey P. Koplan, M.D., M.P.H., Director, Centers for Disease Control and Prevention**

"The fact is that nearly all older adults can safely engage in some form of physical activity and can do so at little or no cost. *The National Blueprint: Increasing Physical Activity Among Adults Aged 50 and Older* advises older adults to forego reliance on today's automated devices and to use muscle power instead. It is time to replace the old armchair mindset with a new one: Stay as physically active as you can." — **Richard J. Hodes, M.D., Director, National Institute on Aging**

"It is exciting and empowering to know that something as basic as regular moderate physical activity can produce such fundamental health benefits for all people, but especially for individuals who are age 50 and older. And the magnitude of the unmet potential for improving the nation's health is driven home by the fact that approximately 34 percent of people over age 50 are sedentary. We hope that organizations working together will be able to effectively deal with many of the barriers to physical activity, and the result of those efforts will be a healthier aging population." — **J. Michael McGinnis, M.D., Senior Vice President and Director of the Health Group, The Robert Wood Johnson Foundation**

The full report, *National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older,* is available at the Robert Wood Johnson Foundation* Web site.

* Links to non-Federal organizations are provided solely as a service to our users. Links do not constitute an endorsement of any organization by CDC or the Federal Government, and none should be inferred. The CDC is not responsible for the content of the individual organization Web pages found at this link.

Steering Committee Organizations

AARP American College of Sports Medicine
American Geriatrics Society
Centers for Disease Control and Prevention
National Institute on Aging
The Robert Wood Johnson Foundation

Back to Press Release Archive

Privacy Policy | Accessibility

Home | About Us | Site Map | Contact Us

CDC Home | Search | Health Topics A-Z

This page last updated May 03, 2002

United States Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Division of Nutrition and Physical Activity

CDC Home | Search | Health Topics A-Z

National Center for Chronic Disease Prevention and Health Promotion

Nutrition & Physical Activity

Home | About Us | Site Map | Topic Index | Contact Us

Physical Activity

- Introduction
- The Importance of Physical Activity
- Recommendations
- Measuring Physical Activity Intensity
- Getting Started
- Making Physical Activity Part of Your Life
- Components of Physical Fitness
- Physical Activity Terms
- Strength Training for Older Adults
- Physical Activity Links
- Health Professional Resources
- Let Us Hear From You!

- What's New!!

- Nutrition
- Physical Activity
- Overweight and Obesity
- Public Health Programs
- Publications
- Recommendations
- Data and Statistics
- Training and Tools

- Related Links

Effective Population-Level Strategies to Promote Physical Activity

from the *Guide to Community Preventive Services*

One or more documents on this Web page is available in Portable Document Format (PDF). You will need Acrobat Reader (a free application) to view and print these documents.

The *Guide to Community Preventive Services* reports evidence-based recommendations on effective population-level interventions to promote physical activity.

An in-depth review of the evidence and recommendations, including information about how the reviews were conducted and commentaries from leading subject matter experts, has been published in the May 2002 supplement to the *American Journal of Preventive Medicine*. A summary report of the recommendations was published in CDC's *MMWR Morbidity and Mortality Weekly Report-Recommendations and Reports Series*, October 26, 2001.

Both reports are available online by visiting the "Publications" section of the *Guide to Community Preventive Services'* website at www.thecommunityguide.org.*

According to scientific literature, what works in getting people physically active?

What is the *Guide to Community Preventive Services (Community Guide)*?

What is the Task Force on Community Preventive Services?

The *Guide to Community Preventive Services* (*Community Guide*) is a federally-sponsored initiative documenting the effectiveness of various population-based interventions. For each health topic selected, an independent Task Force on Community Preventive Services systematically reviews published scientific studies, weighs the evidence, and determines the effectiveness of each intervention strategy by assigning it to one of three categories:

- "Strongly Recommended"
- "Recommended," or
- "Insufficient Evidence." Note, however, that insufficient evidence should *not* be interpreted as ineffective, but rather as requiring additional research in order to strengthen the evidence.

In regard to physical activity promotion, the Task Force **strongly recommended** the following:

View a chart summarizing the findings*(PDF - 168K)

- **Communitywide campaigns*** (PDF - 153K)
  These large-scale, highly visible, multicomponent campaigns direct their messages to large audiences using a variety of approaches, including television, radio, newspapers, movie theaters, billboards, and mailings.

- **Individually-adapted health behavior change programs*** (PDF - 159K)
  These programs are tailored to a person's specific interests or readiness to make a change in physical activity habits. Teaching behavioral skills such as goal setting, building social support, self-rewards, problem solving, and relapse prevention all assist individuals in learning to incorporate physical activity into their daily routines.

- **School-based physical education (PE)***(PDF - 152K)
  This approach seeks to modify school curricula and policies, and to increase the amount of time students spend in moderate to vigorous activity while in physical education class. Schools can accomplish this either by increasing the amount of time spent in PE class, or by increasing students' activity levels during PE classes.

- **Social support interventions in community contexts***(PDF - 152K)
  The goal of this approach is to increase physical activity by creating or strengthening social networks. Examples include exercise buddies, exercise contracts, and walking groups.

- **Creating or improving access to places for physical activity combined with informational outreach***(PDF - 158K)
  This approach ensures that the physical environment is conducive to physical activity, such that places where people can be physically active are readily available, accessible, and acceptable. Examples would include attractive sidewalks, stairwells, walking or biking trails, and exercise facilities in communities or in the workplace. Informational outreach strives to make people aware of available resources, encourages them to take local action, or provides training, seminars, counseling, or risk screening so that resources are well used. The goal is to improve quality of life and achieve livable communities.

The Task Force on Community Preventive Services **recommended** the following:

- **Point-of-decision prompts***(PDF - 158K)
  Motivational information is provided at the place where an individual is likely to be making a choice of action. For example, by locating signs close to elevators and escalators, people are encouraged to use safe and accessible stairs as a physically active alternative to passive transport.

The Task Force categorized the following as having **insufficient evidence** available in the scientific literature to determine effectiveness. More research is needed before a clear determination can be made.

- Classroom-based health education that focuses on information sharing and behavioral change,

- Mass media campaigns,
- Classroom-based health education that encourages young people to reduce television viewing and video game playing time,
- College-level physical education and health education,
- Family-based social support.

Intervention reviews are still **in progress** for the following (expected spring 2002):

- Transportation policy and infrastructure changes to promote nonmotorized transit, and
- Urban planning approaches, such as zoning and land use.

What is the *Guide to Community Preventive Services (Community Guide)*?
The *Community Guide* provides recommendations on population-based interventions appropriate for use by communities and health care systems to promote health and prevent disease, injury, disability, and premature death. The 15-member independent Task Force on Community Preventive Services makes its recommendations based on systematic reviews of topics in three general areas:

- Changing risk behaviors,
- Reducing diseases, injuries, and impairments, and
- Addressing environmental and ecosystem challenges.

The *Community Guide* is a federally-sponsored initiative and is part of a family of federal initiatives which include *Healthy People 2010* and the *Guide to Clinical Preventive Services.*

For a listing of published recommendations on all subject areas, visit http://www.thecommunityguide.org/overview/recs-to-date.pdf*(PDF - 261K). In addition to the published chapters listed, the Task Force will review interventions for obesity and overweight prevention, promotion of healthful eating habits, improved pregnancy outcomes, and substance use.

Additional information on the *Community Guide* such as background, scope and methods can be found by visiting http://www.thecommunityguide.org/methods/.*

What is the Task Force on Community Preventive Services?
The Task Force on Community Preventive Services is an independent, non-federal task force consisting of 15 members, including a chair, appointed by the director of CDC. The Task Force's membership is multidisciplinary, and includes representatives from state and local health departments, managed care, academia, behavioral and social sciences, communications sciences, mental health, epidemiology, quantitative policy analysis, decision and cost-effectiveness analysis, information systems, primary care, and management and policy.

The Task Force is complemented by an array of active participants, including

- CDC Community Guide full-time staff
- Consultants to the Task Force
- Federal agency liaison members

- CDC Liaison Members
- Professional organization liaison representatives

The Task Force determines the scope of the *Community Guide*, topics to be addressed by the *Community Guide*, and the most appropriate means to assess evidence regarding population-based interventions. The Task Force will review and assess the quality of available evidence on the effectiveness and cost-effectiveness of essential community preventive health services and develop recommendations.

For more information about the Task Force and its members, visit http://www.thecommunityguide.org/about/task-force-members.htm.*

Additional Resources

Promoting Physical Activity: A Guide for Community Action

DNPA Physical Activity Links

* Links to non-Federal organizations are provided solely as a service to our users. Links do not constitute an endorsement of any organization by CDC or the Federal Government, and none should be inferred. The CDC is not responsible for the content of the individual organization Web pages found at this link.

Privacy Policy | Accessibility

Home | About Us | Site Map | Contact Us

CDC Home | Search | Health Topics A-Z

This page last updated March 20, 2003

United States Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Division of Nutrition and Physical Activity

Physical Activity Evaluation Handbook

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion

This publication was produced by the National Center for Chronic Disease Prevention and Health Promotion of the Centers for Disease Control and Prevention.

Centers for Disease Control and Prevention
Jeffrey P. Koplan, MD, MPH, Director

National Center for Chronic Disease Prevention and Health Promotion
James S. Marks, MD, MPH, Director

Division of Nutrition and Physical Activity
William H. Dietz, MD, PhD, Director

Technical Information and Editorial Services Branch
Christine Fralish, MLIS, Chief
Amanda Crowell, Writer-Editor

Compiled by
Sarah Levin, MS, PhD
Nancy E. Hood

For more information, contact
Division of Nutrition and Physical Activity
4770 Buford Highway N.E.
Mailstop K-46
Atlanta, GA 30041-3717
(770) 488-5692

This publication is available on the Internet at
http://www.cdc.gov/nccdphp/dnpa

Suggested Citation
US Department of Health and Human Services. *Physical Activity Evaluation Handbook.* Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2002.

Information about the Web sites of nonfederal organizations are provided solely as a service to our users. This information does not constitute an endorsement of these organizations by CDC or the federal government, and none should be inferred. The CDC is not responsible for the content of these Web sites.

Publication support was provided by Palladian Partners, Inc. under contract no. 200-98-0415.

Preface

The landmark 1996 publication, *Physical Activity and Health: A Report of the Surgeon General,* identified substantial health benefits of regular physical activity. In January 2000, *Healthy People 2010* released a set of 10 priority health indicators that include physical activity as one of the major concerns for public health attention.

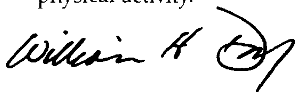
The Physical Activity and Health Branch of CDC's Division of Nutrition and Physical Activity recently partnered with other national organizations to develop guidelines for increasing physical activity across an array of settings and populations. These include

- *Promoting Better Health for Young People Through Physical Activity and Sports.* Available at http://www.cdc.gov/nccdphp/dash/presphysactrp.
- *Promoting Physical Activity: A Guide for Community Action.* Available at http://www.cdc.gov/nccdphp/dnpa/pahand.htm.
- *National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older.* Available at http://www.cdc.gov/nccdphp/dnpa/pr_blueprint.htm.
- *Increasing Physical Activity: A Report on Recommendations of the Task Force on Community Preventive Services.* Available at http://www.cdc.gov/nccdphp/dnpa/physical/recommendations.htm.

We hope the recommendations and strategies described in these and other resources will help users improve existing programs and develop new approaches. As innovative programs emerge and evolve, ongoing program evaluation must be used to

- Measure the effectiveness of new and enhanced interventions.
- Determine whether funds and other resources are being used efficiently.
- Assess the appropriateness and effectiveness of recommended interventions in different settings and populations.
- Demonstrate accountability and influence policy makers.
- Evaluate the effects of comprehensive state approaches.

This handbook provides tools for state and local agencies and community-based organizations that are evaluating physical activity programs. We hope these tools will help users demonstrate program outcomes and continuously improve physical activity promotion programs. The goal is clear: we need to get moving! Program evaluation will enhance our knowledge of the resources, methods, and strategies necessary to increase physical activity.



William H. Dietz, MD, PhD
Director, Division of Nutrition and Physical Activity
National Center for Chronic Disease Prevention and Health Promotion, CDC

Contents

Introduction **5**

Six Steps for Evaluating Physical Activity Programs **9**

Step 1: Engage Stakeholders 9

Step 2: Describe or Plan the Program 13

Step 3: Focus the Evaluation 20

Step 4: Gather Credible Evidence 23

Step 5: Justify Conclusions 29

Step 6: Ensure Use and Share Lessons Learned 32

Appendices **37**

Appendix 1: Program Evaluation Standards and How They Apply To the Six Steps of Program Evaluation 37

Appendix 2: *Guide to Community Preventive Services* Recommendations 41

Appendix 3: Theories and Models Used in Physical Activity Promotion 43

Appendix 4: How to Write SMART Objectives 47

Appendix 5: Indicators and Measurement Resources 49

Appendix 6: Sample Case Studies 55

Introduction

Recognition of the importance of physical activity has reached a new height in America. In fact, physical activity was recently named as one of the 10 leading health indicators in *Healthy People 2010*.[1] Consequently, the imperative to evaluate our physical activity programs is greater than ever.

Why?

Physical activity programs must be evaluated to reflect on our progress, see where we're going and where we've come from, share what we've learned with our colleagues, put money to nonduplicative use, and improve our programs. After all, we will be held accountable.

Program evaluation can be used to

- Influence policy makers and funders.
- Build community capacity and engage communities.
- Share what works and what doesn't work with other communities.
- Ensure funding and sustainability.

Program evaluation can be conducted using these six major steps:

- Engage stakeholders.
- Describe or plan the program.
- Focus the evaluation.
- Gather credible evidence.
- Justify conclusions.
- Ensure use and share lessons learned.

What Is Evaluation?

Evaluation is "the systematic examination and assessment of features of an initiative and its effects, in order to produce information that can be used by those who have an interest in its improvement or effectiveness."[2]

[1] US Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: US Government Printing Office; 2000.

[2] WHO European Working Group on Health Promotion Evaluation. *Health Promotion Evaluation: Recommendations to Policymakers*. Copenhagen: World Health Organization; 1998.

Program evaluation differs from basic research in that its primary aim is not to add to a body of knowledge but to learn how to improve a program. Other distinctions include the following:

- Evaluation is controlled by those involved (the stakeholders) instead of being rigorously designed by an investigator.
- The steps of evaluation vary considerably from those of basic research.
- Standards of evaluation include usefulness, feasibility, accuracy, and fairness rather than internal and external validity.
- Evaluation assesses merit, worth, and importance rather than emphasizing associations.
- Evaluation is holistic and flexible by design to allow for changes and unexpected circumstances rather than being tightly controlled.
- Evaluation methods are both quantitative and qualitative.
- Evaluation is ongoing rather than being limited to a specific timeframe.
- The scope is broad, in an attempt to be integrative, rather than narrowly focused.
- Judgments from evaluation depend on agreed-upon or specifically stated values of a stakeholder rather than being value-free.
- Use of the data is imperative not just to further knowledge and help improve similar programs through publication, but also to build capacity or improve a program.

How?

In 1999, CDC published the *Framework for Program Evaluation in Public Health* (available on-line at http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/rr4811a1.htm).[3] The publication outlines six steps for program evaluation—engage stakeholders, describe the program, focus the evaluation design, gather credible evidence, justify conclusions, and ensure use and share lessons learned.

This handbook uses the *Framework for Program Evaluation in Public Health*, its companion, *An Evaluation Framework for Community Health Programs*,[4] and *Promoting Physical Activity: A Guide for Community Action*[5] as guiding documents to outline these six steps as they relate to physical activity program evaluation.

[3] Centers for Disease Control and Prevention. Framework for Program Evaluation in Public Health. *MMWR* 1999;48(No RR-11).

[4] The Center for the Advancement of Community Based Public Health. *An Evaluation Framework for Community Health Programs*. Durham, NC: The Center for the Advancement of Community Based Public Health; 2000.

[5] US Department of Health and Human Services. *Promoting Physical Activity: A Guide for Community Action*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 1999.

Features unique to this handbook include

We challenge you to "think outside the box" when you consider your own evaluation plans.

We provide KidsWalk-to-School examples to illustrate the main points. CDC's KidsWalk-to-School is a community-based program that aims to increase opportunities for daily physical activity by encouraging children to walk to and from school in groups accompanied by adults.

We provide a worksheet that you can photocopy and use to help you apply each step to your physical activity programs.

We include appendices to provide more detail on certain aspects of program evaluation in relation to physical activity programming, including evaluation indicators and case studies (see Appendices 1–6).

For additional evaluation links and resources, visit the American Evaluation Association's Web site at http://www.eval.org/EvaluationLinks/links.htm.

Standards

Thirty standards provide the guiding principles for your evaluation (see Appendix 1).[6] The standards are based on four key questions that you should ask yourself throughout the six steps of program evaluation.

Is the evaluation

Useful? Will the amount and type of information you collect meet the needs of those who intend to use the evaluation findings?

Feasible? Will the evaluation be practical, doable, and realistic?

Accurate? Will the evaluation findings be correct?

Fair? Will the evaluation be conducted with awareness of the rights of the people involved in the program?

All standards cannot be achieved equally in every situation. However, some standards must always be preserved. Although an accurate measurement of physical activity might not be feasible because of its cost or complexity, you can never skimp on fairness. Likewise, an evaluation is not worth doing if the results will not be used.

[6] The Joint Committee on Standards for Educational Evaluation. *The Program Evaluation Standards: How to Assess Evaluations of Educational Programs.* 2nd ed. Thousand Oaks, CA: Sage Publications; 1994.

Six Steps for Evaluating Physical Activity Programs

Step 1: Engage Stakeholders

How often have you seen evaluation documents gathering dust? A successful evaluation process begins with stakeholders—the people with a vested interest in a program and the future use of its evaluation. With stakeholder input in program planning and evaluation, you will develop and assess a program that meets the needs of those who will use the program and the evaluation results. The first step is to identify all stakeholders whether they are currently at the table or not. A diverse group of stakeholders is critical to success. You can group stakeholders (i.e., people or organizations) in any or all of four main categories, depending on your specific program.

- **Implementers:** those involved in program operations.
- **Partners:** those who actively support the program.
- **Participants:** those served or affected by the program.
- **Decision makers:** those in a position to do or decide something about the program.

Once you have created a complete list of stakeholders, identifying how each should be involved in making decisions about the program and its evaluation is important. Involving every stakeholder in each step would be unwieldy. Decisions about stakeholder involvement are not easy, but can be made according to their needs and interests, authority or control of project resources, or specific knowledge or skills. Certain stakeholders might be key for certain stages of the process.

The size and scope of the program and the intended uses of the evaluation results also affect decisions about stakeholder involvement. For example, having only a few stakeholders involved in evaluating the outreach strategy for a physical activity program in a small, community-based organization might be appropriate if the evaluation's primary purpose is to improve that program. However, if the state department of education is piloting a physical education curriculum that could be mandated for all school districts if deemed successful, many stakeholders should be involved in decision making throughout the evaluation.

Thus, the stakeholders you identify for your evaluation will be a subset of all program stakeholders. They should be the people who will use the evaluation results to make decisions about the program. This relatively small group of people should be present for all major decisions about the evaluation. However, other stakeholders can be consulted or enlisted to implement components of the evaluation. All stakeholders can be kept informed through meeting minutes and regular updates at larger stakeholder meetings.

Think Outside the Box

Even if you are familiar with your program, look for previously unidentified stakeholders. Ask everyone involved with the program to brainstorm a list of stakeholders.

- Include both professional and lay persons.
- Include your opponents or adversaries to avoid future criticism of the program or the evaluation.

Questions for Stakeholders

Throughout the evaluation planning process, you will be asking various subgroups of stakeholders the following questions:

- ✓ What is important about this program?
- ✓ Who do you represent and why are you interested in this program?
- ✓ What would you like this program to accomplish?
- ✓ What are the critical evaluation questions?
- ✓ How will you use the results of this evaluation?
- ✓ What resources (e.g., time, evaluation experience, funding) can you contribute to this evaluation?

Examples of Stakeholders for Physical Activity Programs

Use this list to help you identify a master list of stakeholders. Your evaluation stakeholders will be a subset of all program stakeholders.

Community sector

- Target audience members.
- Community residents.
- Youth.

Government sector

- National, state, and local elected officials.
- Regional or local planning commissions.
- State or county departments of education.
- State or county departments of parks and recreation.
- State departments of tourism.
- Law enforcement agencies.
- Public housing communities.

Health sector

- Wellness councils or physical activity coalitions.
- Physicians in private practice.
- Physical and occupational therapists.
- Insurance companies.
- National and state nursing and medical associations.
- National and state health education associations.

Education sector

- Universities and colleges.
- Technical schools.
- State and local chapters of professional teachers' and administrators' associations.
- Students.

Transportation and environmental development sector

- U.S. Environmental Protection Agency.
- National and state highway traffic and safety officials.
- Professional associations and environmental advocacy groups.

Business sector

- Chamber of Commerce.
- Professional sports teams.
- Large and small businesses and industries.

Media and communication sector

- Television stations.
- Radio station managers.
- Professional journal editors.
- Health and fitness publication editors.

Recreation sector

- National, state, and local parks.
- Walking, hiking, or running clubs.
- State games associations (e.g., Senior Games and Corporate Games).
- Sports governing bodies and state athletic associations.

Religious sector

- Clergy and ministerial associations or councils.
- Youth groups.
- Church-owned recreation facilities, camps, etc.

Voluntary or service organizations sector

- National associations and foundations.
- Parent-teacher associations.
- Graduate students in applicable programs.
- Special public or private foundations.
- Economic development agencies.

KidsWalk-to-School Stakeholders

Implementers

- Parents.
- School teachers and staff.
- Parent/teacher organizations.
- Local health department.

Partners

- 4-H clubs.
- Boys and Girls clubs.
- CDC.

Participants

- Parents.
- Kids.
- Neighbors.

Decision makers

- Principals.
- School boards.
- Elected officials.

Worksheet: Step 1—Engage Stakeholders

Worksheets can be photocopied and used for each program.

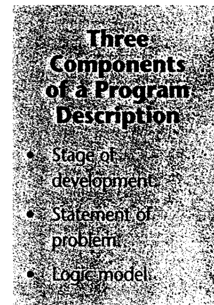
Name of program ____

1. Identify stakeholders.
   - Who is involved in the program operations?
   - Who are the partners?
   - Who is served or affected by the program?
   - Who are the decision makers for the program?
2. Describe how you will assess your stakeholders' interests, needs, resources, and contributions throughout the planning process.
3. Identify the people who will use the results of the evaluation and be involved in most evaluation decisions (i.e., evaluation stakeholders).

Step 2: Describe or Plan the Program

Program planning and evaluation planning should go hand in hand, directed by input from identified stakeholders. A program description includes a definition of the problem that your program will address as well as program activities, resources, expected effects, and context. If you are evaluating an existing program, you should still complete Step 2 because stakeholders may come to the table with different perceptions about what the program is and what it should accomplish. Developing a thorough program description ensures that everyone has the same basic understanding of the program (see Appendix 2 for physical activity program interventions recommended by the *Guide to Community Preventive Services*).

A complete program description has three primary components. First is identification of your program's stage of development. Second is a statement of the problem that your program addresses. Once the need for your program is clear and justified, the third component, a logic model, provides a useful framework for describing or planning the rest of the program.



Stage of Development

The three general program stages are planning, implementation, and maintenance. Your program's stage of development will affect the entire evaluation planning process, starting with the program description. If your program is in the planning stage, you might want to conduct a needs assessment (sometimes called a formative evaluation) to determine the extent of the problem that you want to address or the need that your program might meet. For a program that is already being implemented or maintained, your evaluation planning process will focus more on measuring the implementation of program activities and identifying the expected outcomes for program participants and the contextual factors that affect the process or outcomes of the program. All steps in planning your evaluation will be tailored to your program's stage of development.

Statement of Problem

These questions help define the problem and the corresponding need for the program. Each question includes a hypothetical answer.

- What is the nature of the problem?

  Physical activity is one of 10 leading health indicators for the nation (Healthy People 2010).

- What is the magnitude of the problem (including subpopulations)?

  According to the state Youth Risk Behavior Surveillance System (YRBSS), only 45% of children in grades 9–12 perform the recommended level of physical activity per week.

- What are the consequences of the health problem?

  Physical inactivity leads to many chronic diseases or conditions, such as obesity, cardiovascular disease, and osteoporosis.

Think Outside the Box

Did you notice the multiple sources of data used to describe the problem? Can you think of other sources?

- What causes the problem?

  According to local school district data, only 40% of students are enrolled in physical education (PE) each semester.

- What changes or trends are occurring?

  According to the school principal, PE enrollment has dropped and fewer children walk or ride the bus to school each year because more parents are dropping them off at school.

What Is a Logic Model?

At this stage of planning your program or evaluation, constructing a first draft of a logic model is helpful. If you are evaluating an existing program, obtain a copy of its logic model, if possible. Whether you start from scratch or an existing model, a logic model will help you complete the description of the program at this stage. A logic model is an iterative tool, providing a framework to revisit throughout program planning, implementation, and evaluation.

Ideally, the development of a logic model engages stakeholders and guides program development and evaluation planning simultaneously. This provides a forum to identify and consider stakeholders' differences and priorities.

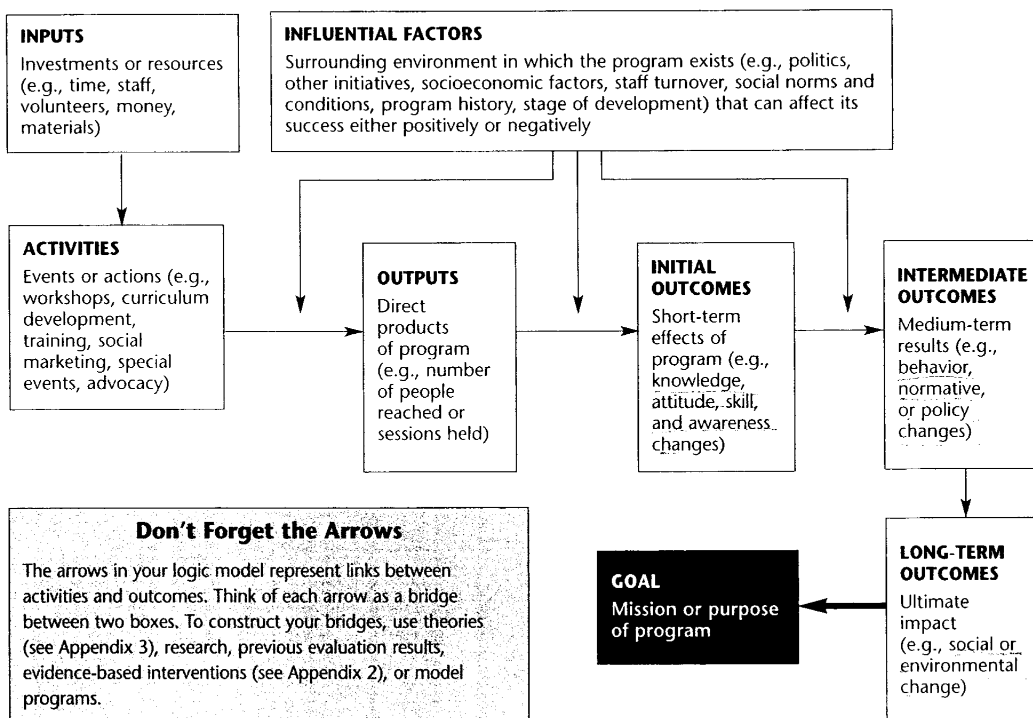
A Logic Model

- Describes the core components of the program.
- Illustrates the connection between program components and expected outcomes.
- Includes pertinent information regarding program context (i.e., influential factors).

A logic model can help you

- Clarify program strategy.
- Justify why the program will work.
- Assess the potential effectiveness of an approach.
- Identify appropriate outcome targets (and avoid overpromising).
- Set priorities for allocating resources.
- Incorporate findings from research and demonstration projects.
- Make midcourse adjustments and improvements in your program.
- Identify differences between the ideal program and its real operation.
- Specify the nature of questions being asked in the evaluation.
- Organize evidence about the program.
- Make stakeholders accountable for program processes and outcomes.
- Build a better program.

Components of a Basic Logic Model



Developing a Logic Model

There is no one correct way to create a logic model. However, the stage of development of the program (i.e., planning, implementation, or maintenance) should steer you to one of two approaches to creating your model: right-to-left or left-to-right.

Right-to-Left Logic Model ← ← ← ← ← ← ← ← ← ← ← ← ← ←

This approach, also called reverse logic, starts with desired outcomes and requires you to work backwards to develop activities and inputs. Usually used in the planning stage, this approach ensures that program activities will logically lead to the specified outcomes if your arrow bridges are well-founded. You will ask the question, "How?" as you move to the left in your logic model. This approach is also helpful for a program in the implementation stage that still has some flexibility in its program activities.

Example

What is the desired long-term outcome?	Youth will incorporate the recommended daily amount of physical activity into their lifestyle. **How?** ↙
What is the desired intermediate outcome?	Youth will gain increased skills and additional physical activity in school. **How?** ↙
What is the desired short-term outcome?	Physical education curricula will be modified. **How?** ↙
What activities are needed to achieve these outcomes?	Physical education teachers will be taught how to modify their curricula to incorporate more lifelong physical activities in a coordinated way with other courses. **How?** ↙
What inputs are needed to achieve these outcomes?	Trainers, model curriculum, facilities, money.

Think Outside the Box

Logic models can take many shapes and sizes. At the end of this chapter you will find a generic logic model that includes a variety of physical activity program activities. You could use this model as a starting point, but feel free to change the design and put your own twist on your model. There is no one correct way to create or display a logic model.

Left-to-Right Logic Model → → → → → → → → → → → → → →

This approach, also called forward logic, may be used to evaluate a program in the implementation or maintenance stage that does not already have a logic model. Start by articulating the program inputs and activities. To move to the right in your model, you must ask the question, "Why?" You can also think of this approach as an "If ..., then ..." progression.

Example

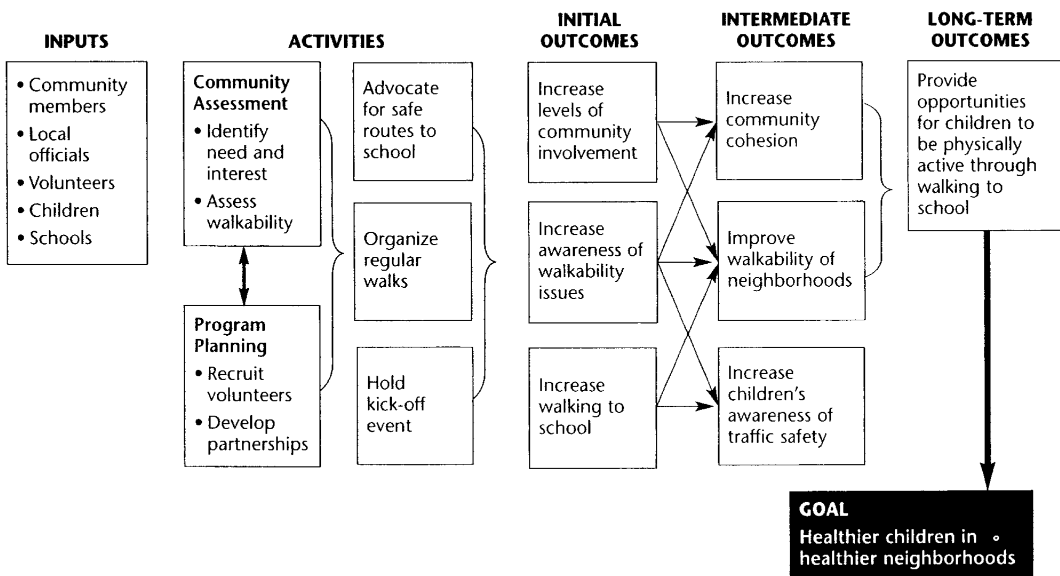
What are the existing inputs?	Staff, incentives, materials. **Why?** ↘
What are the existing activities?	Work Site Wellness Challenge. **Why?** ↘
What are the desired short-term outcomes?	Employees' attitudes will improve and their knowledge about the recommended daily level of physical activity will increase. **Why?** ↘
What is the desired intermediate outcome?	Employees' levels of physical activity will increase. **Why?** ↘
What is the desired long-term outcome?	Work site norms for physical activity will improve.

Examples of Logic Models

Your model may illustrate details about an activity that is part of a larger program or diagram the interactions between all programs in your community or state that address physical activity. Multiple logic models can represent different levels for the same program. Your logic model is a work in progress. Throughout the planning and refining of your program and your evaluation, the logic model will probably need to be revised as well. Use it to identify the activities and outcomes that must be evaluated to keep your programs on track.

KidsWalk-to-School Logic Model*

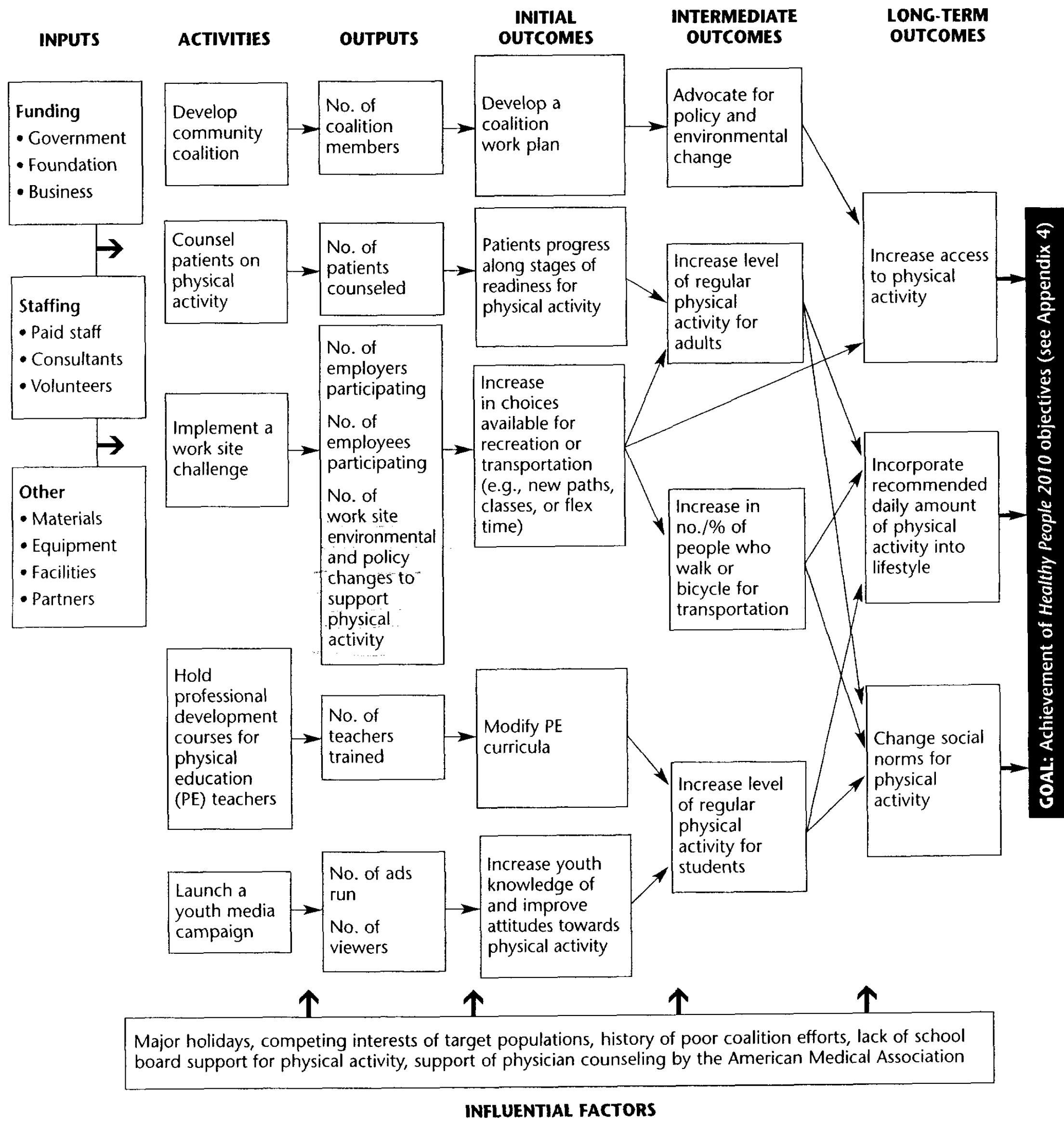
Statement of Problem: Few opportunities exist for schoolchildren to be physically active throughout the day.



* In addition to the logic model, you might also need to create SMART (specific, measurable, achievable, relevant, time-bound) objectives for both process and outcome measures (e.g., "In the first semester, weekly walks from five different locations will be held."). See Appendix 4.

Generic Physical Activity Logic Model

Statement of Problem: 85% of adults and 45% of youth do not achieve the recommended amount of moderate physical activity.



Worksheet: Step 2—Describe or Plan the Program

Worksheets can be photocopied and used for each program.

Name of program ______________________________

1. Plan or describe the program.
   - What is the nature of the problem?
   - What is the magnitude of the problem (including subpopulations)?
   - What are the consequences of the health problem?
   - What causes the problem?
   - What changes or trends are occurring?

2. Plan or describe the program.
   - We know our end goal, so we will work right-to-left and ask, "How?"

   OR

   - We know what we have to put into the program, so we will work left-to-right and ask, "Why?"

Step 3: Focus the Evaluation

Steps 1 and 2 prepare you to decide what to evaluate. In Step 3, your evaluation stakeholders will clarify the primary purpose(s) and uses for the evaluation and identify the most appropriate questions to ask. Evaluating only one aspect of a larger set of activities that constitute a complex, communitywide program is common.

Focus your evaluation by considering the purposes, uses, and evaluation questions.

Purposes and Uses

Three general purposes for conducting evaluations are to gain insight, improve a program, or assess program effects. Possible uses can be grouped according to one of these purposes. Stakeholders should discuss and agree on the general uses of the evaluation up front.

Purpose	Sample Uses
Gain insight	• Assess the level of community interest in a physical activity program, and use that information to plan a physical activity program. • Identify barriers to and facilitators of physical activity in schools, and use that information to advocate for school health policies.
Improve a program	• Monitor the implementation of a youth program, and use the results to enhance the physical activity component of the program. • Survey the target audience that your physical activity message is reaching, and use that information to improve the content and delivery of a physical activity media message.
Assess program effects	• Measure the extent to which your performance indicators are met, and use these results to apply for additional funding. • Use information about which employees benefited most from a work site wellness program to target future efforts more effectively.

Think Outside the Box

Though many of your evaluation questions will be answered by measuring the activities or outcomes from your logic model, encourage stakeholders not to limit their questions. Evaluation questions should ask more than whether outcomes were obtained.

Evaluation Questions

To focus the evaluation, stakeholders indicate what questions they believe the evaluation should answer. Encourage stakeholders to generate a long list of questions, which will then be prioritized based on the stage of your program's development, available resources and the intended uses of the results. The final list should include some questions that are acceptable to all stakeholders.

Ask your stakeholders what they want or need to know about

- Program activities.
- Initial, intermediate, and long-term program outcomes.
- Program participants.
- Larger effects of the program on organizations or communities.
- External factors that influence the program.

Evaluation Questions for Different Stages of Program Development

The stage of program development (i.e., planning, implementation, or maintenance) affects the type of evaluation you will conduct, as well as the types of questions you will ask.

Process Evaluation

Process evaluation documents all aspects of program implementation so that adjustments can be made, if necessary, to keep the program on track. This is the primary type of evaluation used for programs in the implementation stage. Some programs in the maintenance stage also assess process questions. Process questions relate to the inputs and activities outlined in your logic model (i.e., stakeholders may ask about the quantity or quality of inputs or activities). Additionally, questions about the program context (e.g., other initiatives, staff turnover, social norms and conditions, program history, politics) that could affect the inputs or activities can be important, depending on the intended uses of the evaluation.

Sample Questions

- What are we doing? When? Where? How much?
- Are we delivering the program as planned? If not, why has it varied?
- Are there external influences that have affected the program inputs or activities?
- Are we on track with time and resources?
- Are partnerships working effectively? Why or why not?
- What seems to be working and why?
- What is not working very well and why?
- Are we reaching the target audience?
- Should we be doing anything differently from now on? If so, do we need to revise our logic model?

KidsWalk-to-School

Parents wanted to know if their children could safely walk to school. The principal wanted to know if walking to school had an effect on students' school performance in academics and discipline. Although the parents' question could be answered with process measures, the principal's questions would take outcome measures (pretest or posttest). Parents could use the evaluation to give them peace of mind and determine how and whether their children would walk to school. The principal could use the evaluation to justify putting resources into the KidsWalk-to-School program.

Outcome Evaluation

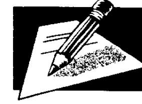
Outcome evaluation (sometimes called impact or summative evaluation) measures the effects of the program on the short-term, intermediate, or long-term outcomes in your logic model. Outcome evaluations should be conducted only when a program is mature enough to potentially produce the desired outcomes. Usually, programs in the maintenance stage are the only ones that can realistically expect outcomes. However, you may be able to ask questions about short-term outcomes for a program in the implementation stage.

Sample Questions

- What did we accomplish? Did we achieve our outcomes? Why or why not?
- What is different as a result of our actions?
- What can we learn from the participants who dropped out of the program?
- How expensive was the program compared with other physical activity interventions?
- Is the program as effective as or more effective than similar programs?
- What went right? What went wrong?
- What could we do differently next time to achieve better outcomes?
- Were there any unintended effects of the program?
- Were there external influences that could have enhanced or hindered the achievement of expected outcomes?

Worksheet: Step 3—Focus the Evaluation

Worksheets can be photocopied and used for each program.



Name of program ____

1. What is the primary purpose of your evaluation?

2. List all potential uses for the evaluation results (be as specific as possible).

3. Identify whether a process or outcome evaluation (or a combination) is most appropriate for your program's stage of development. Then, list all potential evaluation questions. Many of your evaluation questions will come directly from the program logic model.

4. Go back to questions 2 and 3 and put a star beside the uses and evaluation questions that you think are most important and acceptable to stakeholders.

Step 4: Gather Credible Evidence

At this point, you have developed a program description, including a detailed logic model. Additionally, you have determined the primary questions that the evaluation should answer. Including stakeholders in these steps helps ensure that the data you collect will be perceived as reliable and relevant—as will the next step, developing a sound data collection plan. For all components of your data collection plan, you must consider how to obtain maximum quality and how to balance the quality and quantity of your evaluation activities. Also, your evaluation efforts must match your resources. For a minimally funded program, for example, an appropriate evaluation may only include monitoring program activities.

What Data Do You Need?

By developing a logic model and prioritizing the evaluation questions, you have already done much of the work necessary to answer this question. Now you must identify specific indicators to answer each evaluation question (see Appendix 5). For example, changes in participants' one-mile run times can indicate whether their aerobic fitness has improved since beginning your program. The percentage of adults who met a physical activity recommendation could indicate whether your program has increased physical activity levels in the community. Measuring these two outcomes with these indicators could be a way to answer a more general evaluation question—what effect is the program having on participants?

Where Will You Get Your Data?

Sources of data for program evaluations include people, documents, observations, or existing data sources. To increase the credibility of your evidence, collect data from more than one source when possible and use sources that your stakeholders consider credible.

People

- Program participants.
- Staff.
- General public.
- Community leaders.
- Funding officials.
- Critics or skeptics.
- Topic experts.

Documents

- Grant proposals, newsletters, and press releases.
- Publicity or educational materials.
- Quarterly reports.

Considerations for Indicators

Quality

Quality indicators are

- Well-defined.
- Measurable.
- Acceptable measures of the question you want to answer.

Quantity

- Don't try to measure every indicator.
- Choose several indicators for each evaluation question that assess different aspects of the question.
- Specify a use for every indicator you measure.

Ways To Collect Data from People

- Written or telephone surveys.
- Personal interviews.
- Activity logs.
- Focus groups.
- Physical measures (e.g., body weight, blood pressure, body mass index).
- See Appendix 5 for data collection tool resources.

Considerations for Data Sources

Quality

- Use a random sample of your data source rather than a convenient sample that might be biased.
- Use different types of sources to assess different perspectives.
- Clearly state your criteria for selecting sources.
- Use both qualitative and quantitative sources.

Quantity

- Collect data from enough people to make results reliable, but not from so many that data collection is impractical.
- Estimate in advance the amount of data you will collect (consider consulting professional help).
- Minimize the burden on respondents (e.g., don't make the survey or interview too long).

- Medical records.
- Administrative records.
- Program attendance lists.
- Asset and needs assessments.
- Local, state, or national government reports.

Observations

- Direct observations of physical activity behavior.
- Direct observations of environment and/or physical activity facilities.
- Indirect observations via video camera or infrared light counter.

Existing Data

- State and national Behavioral Risk Factor Surveillance System (BRFSS).
- State and national YRBSS.
- National Health and Nutrition Examination Survey (NHANES III).
- National Health Interview Survey (NHIS).
- School fitness testing.
- Crime reports.
- University-based surveys.
- Phone book.

How Will You Know If You Are Successful?

Before collecting data, you should decide on the expected effects of the program on each indicator. This "goal" for each indicator, sometimes called a performance indicator, is often based on an expected change from a known baseline. For example, the average one-mile run time for program participants might be 10 minutes at the start of the program. How much of a decrease in run time must be achieved for the program to be successful? How many work sites need to add activity programs for employees before and after work for the program to be successful? How many communities must add "walkability" concerns to their zoning ordinances for the program to be successful? In Step 5, you will compare your results with these performance indicators to justify your conclusions about the program. Stating your performance indicators before collecting data is important. Performance indicators should be achievable, but challenging, and should consider the program's stage of development, the logic model, and the stakeholders' expectations (see Appendix 5 for a list of common indicators).

KidsWalk-to-School Example: Focus the Evaluation and Gather Credible Evidence

Evaluation Questions	Indicators	Data Sources	Performance Indicators
To what extent does program implementation use community resources?	• Number of volunteers • Longevity of volunteers • Total volunteer time • Description of volunteer activities • School resources contributed to program	• Administrative records • Volunteer activity logs • Key informant interviews	• 25 volunteers total, including five core volunteers • Total volunteer time meets need • Volunteer activities meet need • School contributed to program
What effects has the program had on school-children?	• Number of days walked or biked to school in past week • Children's attitudes towards walking to school (three-question scale for parents and children) • Children's scores on traffic safety test	• Surveys of parents and children (before and after the program)	• 15% increase in number of days/week children walked or biked to school • 20% increase in Likert scale average of three attitude questions • 30% increase in children's traffic safety test scores from baseline
Has the program had any effect on other community members?	• Community members' knowledge of physical activity recommendations • Community members' intentions to exercise • Community members' exercise in past 7 days • Community cohesion scale	• Community household survey (before and after the program or after the program only) • Key informant interviews	• 50% increase in community members' knowledge of physical activity recommendations • 20% increase in community members' intentions to exercise • 10% increase in community members' exercise in past 7 days • 15% increase in community cohesion scale
How has the program affected the community's barriers to walking?	• Description of original barriers to walking • Description of barriers to walking after the program • Quantity and quality of advocacy efforts	• Walkability survey (observations) • Key informant interviews • Volunteer questionnaires	• Qualitative improvement in walkability barriers • Planned advocacy efforts were conducted

Design

After identifying and prioritizing the evaluation questions, indicators, data sources, and performance indicators, you must decide on an evaluation design. A randomized trial is the most rigorous design, but is probably not feasible or appropriate for a community-based physical activity program. Less rigorous designs have strengths and weaknesses and should be combined to maximize the effectiveness of the evaluation design; they also are commonly used to evaluate physical activity programs. Choose your evaluation design with your available expertise, resources, and timeline in mind.

Common Evaluation Designs for Physical Activity Programs

Pretest and posttest (one sample): Assess how many people use a walking trail before a campaign takes place and how many people use it afterward.

Pretest and posttest (two samples; quasi-experimental): Assess how many people walk before and after a campaign in a community, as well as in a similar community elsewhere.

Time-series design: Assess trail use before a campaign, then every other month for 1 year. A time-series design is most feasible with one sample (the community of interest), but more accurate when it includes a comparison community to rule out the possible effect of time itself influencing behavior in the community.

Cross-sectional design: Assess how many people use an existing trail as part of a formative evaluation to determine whether a trail-use campaign is needed. Or, in a posttest-only design, examine only the community where the intervention occurred and describe what happened. Or compare two similar communities after an intervention occurred in one of them. A cross-sectional design should not be used for outcome evaluation because you cannot determine cause and effect when data are collected only once.

Logistics

The methods, timing, and infrastructure for collecting and handling evidence must consider Steps 1–3. The logistics of data collection should particularly consider the cultural context of the program and protect the privacy of the data sources and confidentiality of the information. For example, the sex and race or ethnicity of a person taking measurements for a body mass index (BMI) might need to be matched to the sex and race or ethnicity of the participant. Survey respondents must be told that their individual responses will never be identified by their names.

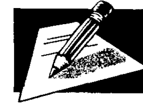
Can You Answer These Questions?

- Is your method culturally acceptable to participants?
- When and how often will you collect the data?
- Who will be considered a participant in the evaluation?
- Will you collect data from a sample or from all participants?
- How will you follow up a survey to achieve a good response rate?
- Who will collect the information? How will they be trained?
- How will you ensure uniform data collection?
- Where and how will data be coded and entered?
- Who will analyze the results?
- How will you build routine error checking (i.e., quality assurance) into your data collection and entry?
- How will the security and confidentiality of the information be maintained?
- Do you need informed consent? Do you need approval from an institutional review board (IRB) at a university or public agency before collecting data?

Agreements

Agreements specify roles and responsibilities so that the evaluation is effectively and efficiently conducted. Elements of the agreement include purpose, users, uses, questions and methods, end products, time line, and budget. Ethical considerations throughout the evaluation process should be discussed in the agreement process (see Appendix 1). The formality of the agreements will depend on the needs and characteristics of the stakeholders, but written documents are recommended even for less formal agreements.

Worksheet: Step 4—Gather Credible Evidence



Worksheets can be photocopied and used for each program.

Name of program ____

Evaluation Questions	Indicators	Data Sources	Performance Indicators

Step 5: Justify Conclusions

The conclusions drawn from your evaluation will be justified by comparing the results with performance indicators and other agreed-upon values or standards set by the stakeholders. This process begins with analyzing and interpreting your data.

Analyze Data

- Enter the data into a computer (e.g., using EpiInfo, a free database available on-line at http://www.cdc.gov/epiinfo).
- Check for data entry errors.
- Tabulate the data (e.g., calculate the number of participants, percentage of participants meeting physical activity recommendations, percentage of participants who walked to school every day).
- Stratify data (e.g., by community, age, race or ethnicity, income level, fitness level).
- Make comparisons (e.g., differences between pretests and posttests or between a comparison and intervention community).
- Present data in a clear and uncomplicated format.

Interpret Results

What do the numbers, frequencies, averages, and statistical test results actually say about your program?

- Are your results similar to what you expected? If not, why do you think they are different?
- Are there alternative explanations for your results?
- How do your results compare with those of similar programs?
- What are the limitations of your evaluations (e.g., potential biases, generalizability of results, reliability, validity)? How well does your evaluation reflect the program as a whole?
- If you used multiple indicators to answer the same evaluation question, did you get similar results?
- Will others interpret the findings in an appropriate manner?

Think Outside the Box

Analyzing data requires expertise in data management and statistical testing. If you do not have this expertise among your staff or stakeholders, be creative in forming partnerships.

- Many university graduate students are looking for evaluation projects and might provide the expertise you need free of charge.
- If you have a larger budget, an evaluation consultant can bring years of experience to your analysis.
- Evaluation staff in local, state, or federal health departments or nongovernmental organizations could be helpful.

KidsWalk-to-School

What would happen to your KidsWalk-to-School program if a child got hurt while walking or bicycling to school? Would this one incident be the basis for the judgments made about the program? We hope not. We hope the process of working through the previous four steps with the stakeholders (and remembering the standards of usefulness, feasibility, accuracy, and fairness) leads to balanced judgments.

Judgments

By comparing the interpretation of your results to agreed-upon standards, you can make judgments about the program based on the purpose(s) and intended uses of the evaluation. Although not explicitly stated, the standards for making judgments have been discussed throughout the evaluation process as the stakeholders have taken the following steps:

- **Set performance indicators.** Performance indicators are standards in and of themselves. Decisions about what measures should be taken and how much they should change over time will be used to judge the process and outcome results of the evaluation.
- **Developed a logic model.** For some stakeholders, the fidelity of program implementation, as outlined by the logic model, is critical. If stakeholders insisted on a detailed logic model, this could indicate that the implementation process is significant to them. They might judge a program more harshly if the process evaluation indicated problems with implementation.
- **Prioritized evaluation questions.** In prioritizing the evaluation questions, stakeholders make their values known. If stakeholders prioritized feasibility, for example, a program might show positive outcomes but be judged according to how practical the continuation of the program is.
- **Made decisions regarding their involvement.** Some stakeholders, perhaps a funder or other resource provider, might want to judge the results of the program evaluation solely by whether resources were used efficiently. If the evaluation results showed an increase in participants' levels of physical activity, but the program was not cost-effective, these stakeholders would judge it differently than a stakeholder involved primarily to promote behavioral change.

Although forming these judgments might not be easy, the consensus-building process will help stakeholders understand the basis for the recommendations in Step 6, thereby helping ensure the future use of evaluation results.

Worksheet: Step 5—Justify Conclusions

Worksheets can be photocopied and used for each program.

Name of program ______________________________

1. Who will analyze the data (and who will coordinate this effort)?

2. Are your results similar to what you expected? If not, why do you think they are different?

    - Are there alternative explanations for your results?
    - How do your results compare with those of similar programs?
    - What are the limitations of your evaluations (e.g., potential biases, generalizability of results, reliability, validity)? How well does your evaluation reflect the program as a whole?
    - If you used multiple indicators to answer the same evaluation question, did you get similar results?
    - Will others interpret the findings in an appropriate manner?

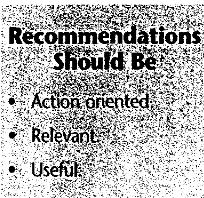
3. Against what "standards" will you compare your interpretations in forming your judgments?

Step 6: Ensure Use and Share Lessons Learned

The eventual uses of your evaluation results have guided the entire evaluation process. In this step, you will prepare tangible products of the evaluation (recommendations and reports), share them with stakeholders and other audiences (communication), and follow up to promote maximum use.

Recommendations

Recommendations for continuing, expanding, redesigning, or abandoning a physical activity program might follow straight from the judgments; however, you should also consider competing priorities and alternatives.



Tips

- Consider your stakeholders' values and align recommendations when possible.
- Share draft recommendations with stakeholders and solicit feedback.
- Relate your recommendations to the original purposes and uses of the evaluation.
- Target your recommendations appropriately for each audience.

Potential audiences for your recommendations

- Schools.
- Workplace owners.
- Parents.
- National agencies and organizations.
- Health insurance agencies.
- Advocacy groups.
- Traffic safety planners and enforcers.
- State legislators.
- City councils.
- Community-based organizations and programs.
- State health department officials.
- Police departments.
- Nonprofit health and service organizations.

Communication

At this point, you have decided what to recommend and who needs to hear the recommendations, but how will you effectively share this information? Your strategy should consider both format and channels.

Format

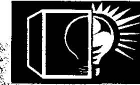
Reports summarizing your evaluation results should be easy to understand and appropriate for the intended audience. Depending on your audiences, you may have to prepare more than one report. Some tips include

- Summarize the evaluation plan and procedures.
- List the strengths and weaknesses of the evaluation.
- List the pros and cons of each recommendation.
- Present clear and succinct results in tables and graphs.
- Summarize the stakeholders' roles and involvement in both the project and the follow-up plans.

Channels

Decide how you will get your information to the intended audiences. You may use

- Mailings.
- Web sites.
- Community forums.
- Media (television, radio, newspaper).
- Personal contacts.
- Listservs.
- Organizational newsletters.



Think Outside the Box

Evaluation results can be communicated in ways other than traditional written reports, including

- Oral presentations.
- Diagrams and charts.
- Illustrations.
- Success stories.
- Newspaper articles.
- Radio reports.
- Local news stories.
- Fact sheets.

Follow Up

Because of the effort required, reaching justified conclusions and making sound recommendations can seem like an end in itself. However, active follow up is needed to

- Remind stakeholders and the audience of the intended uses of the evaluation results.
- Prevent lessons learned from being lost or ignored when complex program or policy decisions are made.
- Prevent misuse of results by ensuring that evidence is applied to the questions that were the evaluation's central focus and that the results are not taken out of context.

KidsWalk-to-School: Communicating the Evaluation

Springfield County recently named local resident Frank Jones coordinator of its Walk-to-School Day for 2002. Jones will receive a small stipend to work with schools across the county to involve them in this annual event that promotes the benefits of physical activity and pedestrian-friendly communities.

"We are delighted that Mr. Jones is willing to lead this project," said Springfield Sheriff Ivan Lee. "As a volunteer, he was instrumental in initiating the first Walk-to-School Day 2 years ago, in 2000, at Burnside Elementary School."

Last year, more than 1,000 schoolchildren had the opportunity to participate in Walk-to-School Day activities, which were held at 5 of the county's 20 elementary schools. The county's goal is for at least half of the elementary schools to participate next year. An informal evaluation indicated that Parent-Teacher Associations (PTAs) at each school were key partners in obtaining parental support and involvement. Therefore, Jones will focus on engaging PTAs in all of the county's elementary schools as he begins planning for the third annual Walk-to-School Day.

"It's rewarding to see kids and their parents out in the community," Jones said. "They are having fun, getting involved in making their communities better, and they hardly even realize that they are also getting exercise."

Worksheet: Step 6—Ensure Use and Share Lessons Learned

Worksheets can be photocopied and used for each program.

Name of program ______________________________

1. Who needs to hear your recommendations in order to promote the use of the evaluation findings?

2. How will you effectively share your evaluation findings?

   - Format.

   - Channel.

3. Who will ensure follow up with users of the evaluation findings, and how will that be accomplished?

   - Who.

   - How.

Appendix 1

Program Evaluation Standards and How They Apply To the Six Steps of Program Evaluation*

Program Evaluation Standards	Program Evaluation Steps
Utility Standards	
Utility standards are intended to ensure that an evaluation will serve the information needs of intended users.	
• **Stakeholder identification:** Persons involved in or affected by the evaluation should be identified so that their needs can be addressed.	**Step 1:** Engage stakeholders.
• **Evaluator credibility:** The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.	**Step 1:** Engage stakeholders.
• **Information scope selection:** Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of clients and other specified stakeholders.	**Step 4:** Gather credible evidence.
• **Values identification:** The perspectives, procedures, and rationale used to interpret the findings should be carefully described so that the bases for value judgments are clear.	**Step 5:** Justify conclusions.
• **Report clarity:** Evaluation reports should clearly describe the program being evaluated, including its context and the purposes, procedures, and findings of the evaluation, so that essential information is provided and easily understood.	**Step 6:** Ensure use and share lessons learned.
• **Report timeliness and dissemination:** Significant interim findings and evaluation reports should be disseminated to intended users so that the information can be used in a timely fashion.	**Step 6:** Ensure use and share lessons.
• **Evaluation impact:** Evaluations should be planned, conducted, and reported in ways that encourage follow-through by stakeholders, so that the likelihood that the evaluation will be used is increased.	**Step 6:** Ensure use and share lessons learned.
Feasibility Standards	
Feasibility standards are intended to ensure that an evaluation will be realistic, prudent, diplomatic,and frugal.	
• **Practical procedures:** The evaluation procedures should be practical to keep disruption to a minimum while needed information is obtained.	**Step 3:** Focus the evaluation.
• **Political viability:** The evaluation should be planned and conducted with anticipation of the different positions of various interest groups, so that their cooperation may be obtained and possible attempts by any of these groups to curtail evaluation operations or to bias or misapply the results can be averted.	**Step 3:** Focus the evaluation.
• **Cost-effectiveness:** The evaluation should be efficient and produce information of sufficient value that the resources expended can be justified.	**Step 3:** Focus the evaluation.

* The Joint Committee on Standards for Educational Evaluation. *The Program Evaluation Standards: How to Assess Evaluations of Educational Programs.* 2nd ed. Thousand Oaks, CA: Sage Publications; 1994.

Program Evaluation Standards	Program Evaluation Steps
Propriety (Ethical) Standards	
Propriety standards are intended to ensure that an evaluation will be conducted legally, ethically, and with due regard for the welfare of those involved in the evaluation, as well as those affected by its results.	
• **Service orientation:** Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.	**Step 3:** Focus the evaluation.
• **Formal agreements:** Obligations of the formal parties to an evaluation (what is to be done, how, by whom, when) should be agreed to in writing, so that these parties are obligated to adhere to all conditions of the agreement or formally to renegotiate it.	**Step 1:** Engage stakeholders.
• **Rights of human subjects:** Evaluations should be designed and conducted to respect and protect the rights and welfare of human subjects.	**Step 1:** Engage stakeholders.
• **Human interactions:** Evaluators should respect human dignity and worth in their interactions with other persons associated with an evaluation, so that participants are not threatened or harmed.	**Step 1:** Engage stakeholders.
• **Complete and fair assessment:** The evaluation should be complete and fair in its examination and recording of strengths and weaknesses of the program being evaluated, so that strengths can be built upon and problem areas addressed.	**Step 3:** Focus the evaluation.
• **Disclosure of findings:** The formal parties to an evaluation should ensure that the full set of evaluation findings along with pertinent limitations are made accessible to the persons affected by the evaluation and any others with expressed legal rights to receive the results.	**Step 6:** Ensure use and share lessons learned.
• **Conflict of interest:** Conflict of interest should be dealt with openly and honestly so that it does not compromise the evaluation process and results.	**Step 1:** Engage stakeholders.
• **Fiscal responsibility:** The evaluator's allocation and expenditure of resources should reflect sound accountability procedures and otherwise be prudent and ethically responsible, so that expenditures are accounted for and appropriate.	**Step 3:** Focus the evaluation.

Program Evaluation Standards	Program Evaluation Steps
Accuracy Standards	
Accuracy standards are intended to ensure that an evaluation will review and convey technically adequate information about the features that determine worth or merit of the program being evaluated.	
• **Program documentation:** The program being evaluated should be described and documented clearly and accurately, so that the program is clearly identified.	**Step 2:** Describe or plan the program.
• **Context analysis:** The context in which the program exists should be examined in enough detail that its likely influences on the program can be identified.	**Step 2:** Describe or plan the program.
• **Described purposes and procedures:** The purposes and procedures of the evaluation should be monitored and described in enough detail that they can be identified and assessed.	**Step 3:** Focus the evaluation.
• **Defensible information sources:** The sources of information used in a program evaluation should be described in enough detail that the adequacy of the information can be assessed.	**Step 4:** Gather credible evidence.
• **Valid information:** The information gathering procedures should be chosen or developed and then implemented so that they will assure that the interpretation arrived at is valid for the intended use.	**Step 4:** Gather credible evidence.
• **Reliable information:** The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use.	**Step 4:** Gather credible evidence.
• **Systematic information:** The information collected, processed, and reported in an evaluation should be systematically reviewed and any errors found should be corrected.	**Step 4:** Gather credible evidence.
• **Analysis of quantitative information:** Quantitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	**Step 5:** Justify conclusions.
• **Analysis of qualitative information:** Qualitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	**Step 5:** Justify conclusions.
• **Justified conclusions:** The conclusions reached in an evaluation should be explicitly justified so that stakeholders can assess them.	**Step 5:** Justify conclusions.
• **Impartial reporting:** Reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that reports fairly reflect the evaluation's findings.	**Step 6:** Ensure use and share lessons learned.
• **Metaevaluation:** The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.	**Steps 1–6:** Continually evaluate the strengths and weaknesses of your evaluation.

Appendix 2

*Guide to Community Preventive Services** Recommendations

In 2001, the Task Force on Community Preventive Services published recommendations on evidence-based interventions to promote physical activity. Based on systematic reviews of the literature, these recommendations provide guidance to organizations and agencies that are planning or conducting programs to increase physical activity. However, the recommendations are based on a limited number of well-controlled interventions in specific settings with selected populations. Therefore, the implementation and effectiveness of a program in your specific environment should still be evaluated. Some interventions reviewed by the *Community Guide* revealed insufficient evidence to support a recommendation, but only recommended or strongly recommended interventions are presented here.

Intervention	Intervention Description	Task Force Recommendation for Use	Indicators Measured in Reviewed Studies
Informational Approaches			
Community-wide campaigns	Large-scale, high-intensity, community-wide campaigns with sustained high visibility. Messages regarding physical activity behavior are promoted through television, radio, newspaper columns and inserts, and trailers in movie theaters.	Strongly recommended	Percentage of persons active. Estimated energy expenditure. Time spent in physical activity. Scaled activity scores.
Point-of-decision prompts	Motivational signs placed close to elevators and escalators encouraging use of nearby stairs for health benefits of weight loss.	Recommended	Percentage of persons taking stairs instead of elevators or escalators (settings included train, subway, and bus stations; shopping malls; and university libraries).
Behavioral and Social Approaches			
Individually adapted health behavior change programs	Programs tailored to the person's readiness for change or specific interests. Designed to help participants incorporate physical activity into their daily routines by teaching them behavioral skills, including goal-setting and self-monitoring, building social support, behavioral reinforcement (self-reward and positive self-talk), structured problem-solving, and relapse prevention. May be delivered in group settings or by mail, telephone, or directed media.	Strongly recommended	Minutes spent in physical activity. Energy expenditure.

* Centers for Disease Control and Prevention. Increasing Physical Activity: A Report On Recommendations of the Task Force on Community Preventive Services. *MMWR* 2001;50(No. RR-18):1–16. Also see the *Guide to Community Preventive Services* Web site at http://www.thecommunityguide.org.

Intervention	Intervention Description	Task Force Recommendation for Use	Indicators Measured in Reviewed Studies
Behavioral and Social Approaches *(continued)*			
School-based physical education (PE)	Modified curricula and policies to increase the amount of moderate or vigorous activity, the amount of time spent in PE class, or the amount of time students are active during PE class. Interventions included changing the activities taught or modifying the rules of the game so that students are more active.	Strongly recommended	Minutes per week spent in moderate to vigorous physical activity (MVPA). Percentage of class time spent in MVPA. Estimated energy expenditure.
Social support interventions in community settings (does not include family settings)	Focus is on changing physical activity behavior through building, strengthening, and maintaining social networks that provide supportive relationships for behavior change. Strategies include creating new social networks or working within preexisting networks in a social setting (e.g., the workplace), setting up a buddy system, contracting with another person to complete specified levels of physical activity, or establishing walking groups or other groups to provide friendship and support.	Strongly recommended	Minutes spent in activity. Frequency of exercise episodes.
Environmental and Policy Approaches			
Creation of or enhanced access to places for physical activity combined with informational outreach activities	Access to places for physical activity can be created or enhanced by building trails or facilities or by reducing barriers to such places. Certain programs also provide training in using equipment and incentives (e.g., risk factor screening and counseling or other health education activities). Work site programs were also included in this category.	Strongly recommended	Percentage of persons exercising on X days per week. Self-reported exercise scores. Energy expenditure.

Appendix 3

Theories and Models Used in Physical Activity Promotion

As you are planning or describing your program, referring to individual, interpersonal, or community-level theories that relate to health behavior change is sometimes useful. For example, these theories could support the arrow bridges in your logic model or help you identify potential points of intervention. Because the theories and models presented here are supported by varying levels of research, use them as one piece of your planning puzzle.

Theory/Model	Summary	Key Concepts
Individual Level		
Health belief model	For people to adopt recommended physical activity behaviors, their perceived threat of disease (and its severity) and benefits of action must outweigh their perceived barriers to action.	Perceived susceptibility Perceived severity Perceived benefits of action Perceived barriers to action Cues to action Self-efficacy
Stages of change (transtheoretical model)	In adopting healthy behaviors (e.g., regular physical activity) or eliminating unhealthy ones (e.g., watching television), people progress through five levels related to their readiness to change—precontemplation, contemplation, preparation, action, and maintenance. At each stage, different intervention strategies will help people progress to the next stage.	Precontemplation Contemplation Preparation Action Maintenance
Relapse prevention	Persons who are beginning regular physical activity programs might be aided by interventions that help them anticipate barriers or factors that can contribute to relapse.	Skills training Cognitive reframing Lifestyle rebalancing
Information-processing paradigm	The impact of persuasive communication, which can be part of a social marketing campaign to increase physical activity, is mediated by three phases of message processing—attention to the message, comprehension of the content, and acceptance of the content.	Exposure Attention Liking/interest Comprehension Skill acquisition Yielding Memory storage Information search and retrieval Decision Behavior Reinforcement Postbehavior consolidation

Theory/Model	Summary	Key Concepts
Interpersonal Level		
Social learning/ social cognitive theory	Health behavioral change is the result of reciprocal relationships among the environment, personal factors, and attributes of the behavior itself. Self-efficacy is one of the most important characteristics that determine behavioral change.	Self-efficacy Reciprocal determinism Behavioral capability Outcome expectations Observational learning
Theory of reasoned action	For behaviors that are within a person's control, behavioral intentions predict actual behavior. Intentions are determined by two factors—attitude toward the behavior and beliefs regarding others people's support of the behavior.	Attitude toward the behavior • Outcome expectations • Value of outcome expectations Subjective norms • Beliefs of others • Desire to comply with others
Theory of planned behavior	People's perceived control over the opportunities, resources, and skills needed to perform a behavior affect behavioral intentions, as do the two factors in the theory of reasoned action.	Attitude toward the behavior • Outcome expectations • Value of outcome expectations Subjective norms • Beliefs of others • Desire to comply with others Perceived behavioral control
Social support	Often incorporated into interventions to promote physical activity, social support can be instrumental, informational, emotional, or appraising (providing feedback and reinforcement of new behavior).	Instrumental support Informational support Emotional support Appraisal support

Theory/Model	Summary	Key Concepts
Community Level		
Community organization model	Public health workers help communities identify health and social problems, and they plan and implement strategies to address these problems. Active community participation is essential.	Social planning Locality development Social action
Ecological approaches	Effective interventions must influence multiple levels because health is shaped by many environmental subsystems, including family, community, workplace, beliefs and traditions, economics, and the physical and social environments.	Multiple levels of influence • Intrapersonal • Interpersonal • Institutional • Community • Public policy
Organizational change theory	Certain processes and strategies might increase the chances that healthy policies and programs will be adopted and maintained in formal organizations.	Definition of problem (awareness stage) Initiation of action (adoption stage) Implementation of change Institutionalization of change
Diffusion of innovations theory	People, organizations, or societies adopt new ideas, products, or behaviors at different rates, and the rate of adoption is affected by some predictable factors.	Relative advantage Compatibility Complexity Trialability Observability

Sources

1. Alcalay R, Bell RA. *Promoting Nutrition and Physical Activity Through Social Marketing: Current Practices and Recommendations.* Davis, CA: Center for Advanced Studies in Nutrition and Social Marketing, University of California, Davis; 2000.
2. National Institutes of Health. *Theory at a Glance: A Guide for Health Promotion Practice.* Bethesda, MD: National Institutes of Health, National Cancer Institute; 1995.
3. US Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General.* Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

Appendix 4

How to Write SMART Objectives

For many grants and reports, you might have to write goals and objectives. This handbook mentions goals briefly, using the words outcomes and indicators, but does not use the term objectives. However, throughout the process of evaluation planning, all of the decisions necessary for writing program goals and objectives have been made.

Specific
Measurable
Achievable
Relevant
Time-bound

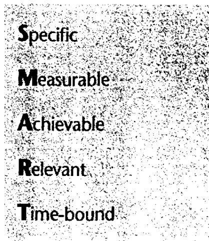
Program Goal

In Step 2, you designed a logic model for your program that probably included a goal or mission statement. If not, review your logic model and the description of the problem that the program is trying to address. Compose a phrase or short sentence that captures the overarching, ideal purpose of your program. This is your goal.

Program Objectives

To formulate strong program objectives, use information from your logic model to write SMART (specific, measurable, achievable, relevant, and time-bound) objectives. You can write either process or outcome objectives by using the information in your logic model. Process objectives include content from the activities column of your logic model. Outcome objectives include content from the outcomes columns of your logic model.

Other components of the evaluation planning process that will help you write SMART objectives include evaluation questions, data sources, and performance indicators. You may also borrow the *Healthy People 2010** objectives or link your local objectives with these national objectives.



KidsWalk-to-School Examples

Process Objective

In the first semester of KidsWalk-to-School, 20 community volunteers will commit to participating in organized walks to school.

Outcome Objective

By the end of this school semester, the number of students walking to school will increase by 20%.

***Healthy People 2010* Objectives for Physical Activity**

As national priorities for physical activity promotion, these objectives may be used as the long-term objectives for your program.

- **Physical activity is a leading health indicator for the United States. To monitor progress for *Healthy People 2010,* the physical activity indicator is being measured by the following two objectives:**

  22.7 Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness ≥3 days per week for ≥20 minutes per occasion.

  22.2 Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day.

* US Department of Health and Human Services. *Healthy People 2010.* 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: US Government Printing Office; 2000.

- **Additional physical activity objectives include**

Physical Activity in Adults

22.1 Reduce the proportion of adults who engage in no leisure-time physical activity.

22.3 Increase the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness ≥3 days per week for ≥20 minutes per occasion.

Muscular Strength/Endurance and Flexibility

22.4 Increase the proportion of adults who perform physical activities that enhance and maintain muscular strength and endurance.

22.5 Increase the proportion of adults who perform physical activities that enhance and maintain flexibility.

Physical Activity in Children and Adolescents

22.6 Increase the proportion of adolescents who engage in moderate physical activity for at least 30 minutes on ≥5 of the previous 7 days.

22.7 Increase the proportion of the nation's public and private schools that require daily physical education for all students.

22.8 Increase the proportion of adolescents who participate in daily school physical education.

22.9 Increase the proportion of adolescents who spend at least 50% of school physical education class time being physically active.

22.10 Increase the proportion of adolescents who view television ≤2 hours on a school day.

Access

22.11 (Developmental) Increase the proportion of the nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours (i.e., before and after the school day, on weekends, and during summer and other vacations).

22.12 Increase the proportion of work sites offering employer-sponsored physical activity and fitness programs.

22.13 Increase the proportion of trips made by walking.

22.14 Increase the proportion of trips made by bicycling.

Appendix 5

Indicators and Measurement Resources

Common Individual-Level Indicators for Physical Activity

These indicators can be used to measure individual-level outcomes of your physical activity program. This list is not comprehensive. Make sure you choose indicators that are realistic for your program and that can be measured using available resources.

Measure	Source of Data	Comments
Direct Measures		
Metabolic equivalent (MET)* intensity levels (MET-minutes per day or week) Light: <3 METs Moderate: 3–6 METs Vigorous: >6 METs	Questionnaire	*The Compendium of Physical Activities** lists 605 specific activities that are each assigned an intensity level based on the rate of energy expenditure (EE), expressed as METs. One MET is considered a resting metabolic rate while sitting quietly. By expressing self-reported minutes of activities in MET-minutes, you create a standardized physical activity measure that you can compare with other MET-minutes of activity. Calculate from a past week's recall of physical activity as follows: *MET-mins/day = (frequency x time x intensity) / 7 days*
Minutes of physical activity per day or week	Questionnaire	For minutes or MET-minutes, it may be helpful to separate the following types of physical activity for respondents: job-related; transportation; housework, house maintenance, and caring for family; and recreation, sport, and leisure-time.† Note that raw minutes of physical activity do not include the intensity of the activity. Calculate from a past week's recall of physical activity as follows: *Minutes/day = (frequency x time) / 7 days*
Steps walked per day or week	Pedometer	Simple, relatively inexpensive tool to assess mobility.
Energy expenditure (EE) per day or week	Accelerometer	Accelerometer measures two or three dimensions of movement. Software can calculate EE based on the person's age, sex, height, and weight.

Measure	Source of Data	Comments
Indirect Measures		
Waist circumference	Tape measure	
Waist-hip ratio	Tape measure	Equals the circumference of the waist divided by the circumference of the hips.
Body mass index (BMI)	Scale Height board Self-report	BMI = weight (kg) / height $(m)^2$
Aerobic fitness (VO_2 max)	Treadmill Bicycle tests Step test	The American College of Sports Medicine has established and published valid protocols for all of these tests to measure aerobic fitness. VO_2 max can be estimated from heart rate or measured directly.
Aerobic fitness (field measure)	1-mile walk/run time	Time to complete one measured mile is an indirect measure of fitness.
Youth fitness scores	1/2-mile or 1-mile run time	FitnessGram[§] provides a complete protocol for youth fitness testing.
Intervening Measures		
Knowledge	Questionnaire	Do respondents know the recommended levels/frequency of physical activity? Do they know the different recommendations for moderate versus vigorous activity?
Attitudes	Questionnaire	How do respondents feel about being physically active? What do they think will happen if they increase their levels of physical activity? How confident are they about their ability to do physical activity?
Stage of change (transtheoretical model)	Questionnaire	Respondents might be at different stages in changing their behavior. Different interventions are more appropriate for different stages of change, and progress can be measured by assessing progression through the stages.

* Ainsworth BE, Haskell WL, Whitt MC, et al. Compendium of Physical Activities: An Update of Activity Codes and MET Intensities. *Med Sci Sports Exerc* 2000;32(suppl 9):S498–S516.

† International Physical Activity Questionnaire. Available on-line at http://www.ipaq.ki.se.

§ FitnessGram. Available on-line at http://www.cooperinst.org/ftgmain.asp.

Emerging Community-Level Indicators* for Physical Activity

Consensus is growing in the public health community that public health interventions should focus on population-level changes in risk factors (i.e., a primary prevention strategy versus an individual-based approach focusing on persons at high risk). Community-level indicators (CLIs) are based on observations of communities, not individuals. CLIs are useful for evaluating community-based health interventions for two reasons. First, they can be cheaper to collect (e.g., visiting 10 large workplaces or using Geographical Information Systems to map mean distances from homes to recreation sites rather than surveying 1,000 people). For example, one study reported that measures of grocery store shelf space could detect community-level changes in dietary indicators (e.g., the percentage of people drinking low-fat milk) with roughly the same relative power as individual-level surveys, at less than one-tenth the cost. Second, CLIs are especially useful for measuring changes in polices and the environment because they help focus on distal communitywide conditions that influence behavior.

The CLIs listed here should be used to generate ideas for your evaluation. They have not been empirically validated. Make sure the measures you select are tailored to your particular intervention goals and are available at reasonable cost and effort. For more information about indicators, see *Health Promotion Indicators and Actions* (Kar, Snehendu. New York: Springer Publishing Co; 1989).

Policy and regulation	Presence of local policy to include physical education (PE) in public K–12 curriculum. Amount/percentage of local budget per capita devoted to physical activity/recreation. Presence of policies promoting inclusion of recreation facilities with new construction.
Information	Percentage of health-care providers that routinely advise patients to exercise more. Availability of materials in work sites linking physical activity to cardiovascular disease. Percentage of schools offering curricula in grades K–12. Number of media reports dealing with physical activity. "Point-of-purchase" education materials.
Environmental	Miles of walking trails per capita in schools. Number of physical activity facilities per capita in schools. Availability of facilities to community members (e.g., how many, hours of operation). Number of programs for physical activity offered in community. Number of agencies in community that sponsor physical activity events or programs. Level of enforcement of pedestrian/driver responsibilities (e.g., jaywalking, yielding to pedestrians). Zoning/development regulations that require or promote "smart growth." Score on pedestrian walkability scales.
Behavioral outcome measures	Observations of usage (e.g., in malls, trails). Membership in physical activity organizations (e.g., YMCAs, YWCAs, health clubs). Sales of selected physical activity items (e.g., sports equipment, videos).

* Cheadle A, Sterling TD, Schmid TL, Fawcett SB. Promising Community-Level Indicators for Evaluating Cardiovascular Health-Promotion Programs. *Health Educ Res* 2000;15:109–116.

Measurement Resources

These resources are intended to help you develop data collection instruments to measure your selected indicators. Because some of these instruments have been tested for reliability and validity, you can improve the quality of your data collection by using them. Also, using items from an existing survey allows comparison of your responses with others. However, be careful to select items that actually measure the indicators your program is designed to affect. No one tool from this list is likely to be the most appropriate data collection instrument for your evaluation. You might need to combine items from several surveys or combine an environmental checklist with a questionnaire designed to assess behavior change. Also, some tools might be more appropriate for program planning than evaluation data collection. Review the examples critically as you develop your own data collection instruments and plans.

- National Health and Nutrition Examination Survey (NHANES), CDC. Physical Activity and Physical Fitness Questionnaire. Questions address activities related to transportation, daily activities, and leisure-time activities. Available on-line at http://www.cdc.gov/nchs/about/major/nhanes/questexam.htm.
- Behavioral Risk Factor Surveillance System, CDC. Physical activity questions. Using this national survey allows you to compare your results with the same questions at the state and national level. Available on-line at http://www.cdc.gov/nccdphp/brfss/brfsques.htm.
- A Collection of Physical Activity Questionnaires for Health Related Research. Seventeen of these complete questionnaires are used to survey the general population, four are used for older adults, and seven are used as part of major population-based surveys. *Med Sci Sports Exerc* 1997;29(suppl 6).
- International Physical Activity Questionnaire. Four internationally comparable questionnaires that measure adult levels of physical activity. Available on-line at http://www.ipaq.ki.se/.
- CDC KidsWalk-to-School Guide (Walk-to-School Survey and Walkable Routes to School Survey). Can be used to measure behavior and environmental changes for any program that promotes kids walking to school. Available on-line at http://www.cdc.gov/nccdphp/dnpa/kidswalk/kidswalk_guide.htm.
- HeartCheck (New York Department of Health). Used to assess work site facilities, practices, and policies that support a heart-healthy lifestyle. PDF file available. Contact Lori King at (518) 473-0673 or by E-mail at LSM06@health.state.ny.us.

- Local Index of Transit Availability (LITA) Manual, Local Government Commission. Outlines a system for rating transit availability in various parts of metropolitan areas. Available on-line at http://www.lgc.org/freepub/land_use/lita/lita_manual.html.
- Walkability Checklist, Partnership for a Walkable America, Pedestrian and Bicycle Information Center and U.S. Department of Transportation. Simple checklist allows you to rate environmental walkability factors as you walk around your neighborhood. Available on-line at http://www.walkinginfo.org/walkingchecklist.htm.
- Promoting Active Communities Award, Community Self-Assessment Inventory. Governor's Council on Physical Fitness, Health, and Sports. Michigan Fitness Foundation. Assessment checklist includes the following categories: policies and planning, pedestrian and bicycle safety and facilities, community resources, work sites, schools, and public transportation. Call 1-800-434-8642 for more information.

Appendix 6

Sample Case Studies

Case Study 1: Active Play Project

This evaluation case study is an example of a program designed to achieve school-based physical education, which is an intervention strongly recommended by the Task Force on Community Preventive Services to promote physical activity (see Appendix 2).

Step 1: Engage Stakeholders

During the planning of the project, project staff conducted the following activities to gain stakeholder involvement from the beginning:

- Contacted **school principals** with a letter and a follow-up telephone call to assess their interest in the project and enlist their support.
- Visited **community health workers** at the local health department to assess current, related programming efforts and to inform them about the Active Play project.
- Conducted focus group with **parents** to understand their feelings about physical activity related to their children's health.
- Interviewed **students** in groups of two or three to learn what activities they enjoy.

Additional stakeholders for the evaluation included

- Implementers: **Teachers** (both classroom and physical education); **researchers** who planned the project.
- Partners: **Funder** (a local foundation).

Step 2: Describe or Plan the Program

Several school districts in the state were identified by annual school height and weight surveys as having significantly higher rates of overweight and obesity than other districts. Nationally, almost 1 out of every 5 students is overweight; in these school districts, almost 1 out of 4 students is overweight. Therefore, schools and university-based researchers came together to plan a pilot project targeted at increasing students' activity levels at school. Several schools from one of the districts with students at high risk were selected for the pilot project. The current evaluation was conducted during the implementation of the year-long pilot project. Note that the evaluation was planned simultaneously with the project planning, and key evaluation stakeholders were involved from the first meeting. The logic model outlines project activities and expected outcomes.

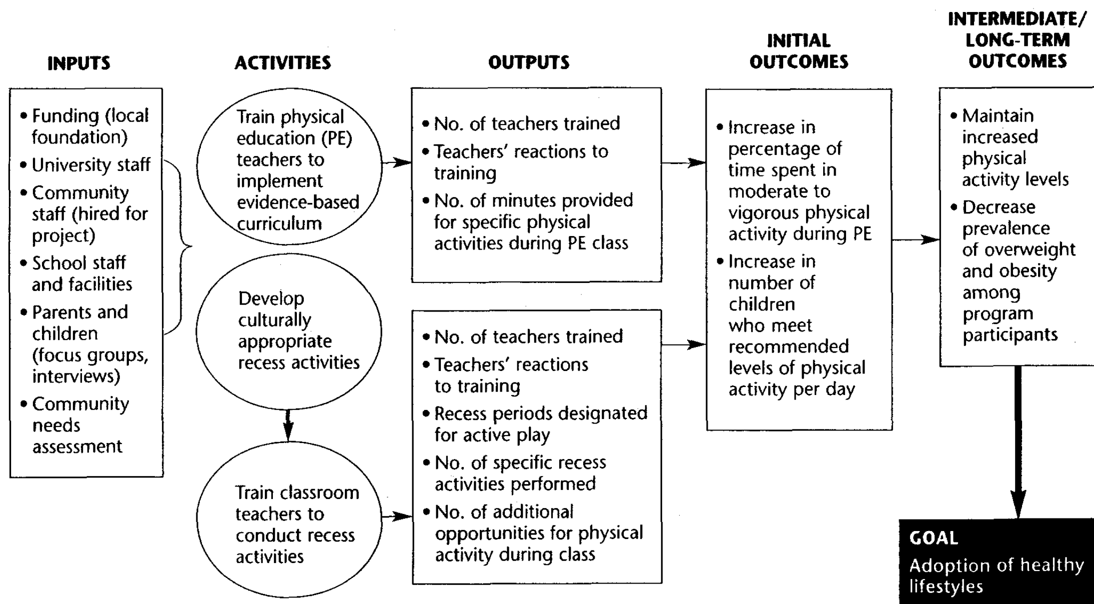
Step 3: Focus the Evaluation

The purpose of the evaluation of the Active Play pilot project was to identify ways to improve the project and to measure short-term outcomes. The project was in its first implementation year, so measuring longer-term impacts was not appropriate for this evaluation. The evaluation was used to create an annual report for the local funder, who would use it to determine whether to continue funding the project. The implementers used the evaluation to make informed changes to the project, which was likely to continue even if the funding decreased after the pilot year.

After meeting with each stakeholder, the evaluators compiled the following **evaluation questions**:

- Were the project components implemented as planned?
- Did students become more active as a result of the project?
- What were the reactions of students and teachers to the project?

Active Play Project Logic Model



Step 4: Gather Credible Evidence

This evaluation used a one-sample pretest and posttest.

Evaluation Questions	Indicators	Data Sources	Performance Indicators
Were the project components implemented as planned?	No. of teachers trained No. of minutes provided for specific physical activities during PE class No. of recess periods designated for active play No. of additional opportunities for physical activity during class	Training sign-in logs Observations of recess and PE classes (using SOFIT*) Teacher implementation checklist	80% of PE and classroom teachers trained 50% increase in minutes provided 20% increase in active play recess periods 15% increase in opportunities for physical activity
Did students become more active as a result of the project?	Percentage of time spent in moderate to vigorous physical activity in PE class Percentage of students who meet recommended levels of physical activity per day	Observations of recess and PE classes (using SOFIT) Accelerometer counts (worn by students) Interviews with students about their physical activity during the past day	50% increase in minutes active in PE class 20% increase in students who get recommended physical activity per day
What were the reactions of students and teachers to the project?	Teachers' reactions to training Students' reactions to recess activities	Posttraining evaluation forms Interviews with students	Not applicable

Step 5: Justify Conclusions

Researchers analyzed the data and provided preliminary interpretations. Generally, results indicated that project components were implemented as planned and reactions of students and teachers to the Active Play project were positive. However, the increase in the number of active play recess sessions did not meet the performance indicator as indicated by the implementation checklists for classroom teachers.

Looking at outcomes of the project, the number of students who achieved the recommended amounts of physical activity per day only increased by 5%. This increase was not significantly higher than preintervention levels and was well below the performance indicator of a 20% increase. Active minutes increased 10% as part of PE classes, which again was not significantly higher than the number of active minutes measured before the Active Play project. In interpreting these results, stakeholders had to make some decisions about which standards were most important for judging the data. To facilitate this process, stakeholders were brought together to review the findings and to make recommendations based on the data.

* McKenzie TL, Sallis JF, Nader PR. SOFIT: System For Observing Fitness Instruction Time. *J Teach Phys Educ* 1991;11:195–205.

Step 6: Ensure Use and Share Lessons Learned

As expected, stakeholders went back and forth in their opinions regarding the strength of the positive feelings associated with the project versus the nonsignificant behavioral outcomes. Some quotes from the meeting help to illustrate the perspectives of different stakeholders.

Elementary school principal
"I think that this is a great project and we should make improvements based on the evaluation. We're moving in the right direction—the numbers show that kids are more active. This is a project that teachers and students like. It's fun for the kids and it challenges teachers to try something new."

Community health worker
"The problem is that the project only focuses on schools. When kids go home after school, their parents don't encourage them to be active—kids think it's a treat to get to sit in front of the TV for 4 hours every night."

Physical education teacher
"I don't know what else we can do besides offer time for kids to be active. One of the biggest issues is that the kids are only in PE 2 days a week. The only thing that matters to the school is proficiency tests these days."

Classroom teacher
"It was hard sometimes to get kids organized during recess to play structured games. They have structure all day. Recess is supposed to be a time for free play, for creativity and doing what they want to do, not what someone tells them to do. That was hard for me."

University researcher
"Even though there were some positive benefits to the project, we need to ask ourselves if those benefits are worth the time and money put into the project, because the outcomes that we wanted to see were not seen."

Despite these differing perspectives, stakeholders compiled a short, concrete list of recommendations for improving the project. Each person was given an opportunity to suggest changes, then the group voted on which changes could be made and which recommendations were priorities. Unfortunately, the foundation did not support the project for another year because behavioral outcomes were not supported by the evaluation. Nonetheless, based on the relationships between stakeholders that were built during the year-long project planning, implementation, and evaluation, the project continued. The university provided the minimal funds needed for additional training, and university staff conducted the training as part of their community service requirements. PE teachers from nearby schools attended the training based on positive feedback they heard from other PE teachers in the pilot schools.

Case Study 2: Evaluation of the Healthy Hawaii Initiative

This evaluation case study is an example of a community-wide campaign, which is an intervention strongly recommended by the Task Force on Community Preventive Services to promote physical activity (see Appendix 2).

Step 1: Engage Stakeholders

In 1999, Act 304 created a tobacco settlement special fund in the state treasury to be administered by the Hawaii Department of Health (DOH), mandating DOH to expend up to 25% of the tobacco settlement money for health promotion and disease prevention programs, promotion of healthy lifestyles (including fitness, nutrition, and tobacco control), and prevention-oriented public health programs.

DOH, working in collaboration with its newly created Tobacco Settlement Health and Wellness Advisory Group (TAG), composed of representatives from leading community agencies and coalitions, and the Centers for Disease Control and Prevention (CDC), created The Healthy Hawaii Initiative (HHI). This initiative is a major statewide effort to encourage healthy lifestyles and the environments to support them, with an emphasis on the healthy development of children and adolescents in relation to the three critical risk factors that contribute significantly to the burden of chronic disease: poor nutrition, lack of physical activity, and tobacco use.

TAG was essential in designing the overall structure of the community programs outreach, creating community buy-in, and planning for the evaluation. Because of the scope of the project and the large amount of available money, TAG decided that an independent evaluator should conduct the HHI evaluation. The stakeholders on TAG remained involved in the evaluation by receiving regular reports. As the program implementer, DOH was directly involved in planning the evaluation and has remained the primary stakeholder in the ongoing HHI evaluation process.

Step 2: Describe or Plan the Program

This program encompasses a multicomponent approach to improving health in Hawaii. Funds were granted to organizations in the following areas:

- **Coordinated School Program.** Sixteen school complexes have been funded to implement the CDC eight-component model† of coordinated school health. In addition, a statewide office has been created with 10 state- and district-level resource teachers to implement the health and physical education (PE) performance and content standards at all schools.
- **Community Programs.** Community groups throughout the state have received funds to develop and implement an action plan to make system, environmental, and policy changes in the target behaviors. In addition, larger grants are available to make coordinated systems and environmental changes across the state.

† The eight components are health education, physical education, health services, nutrition services, health promotion for staff, counseling and psychological services, healthy school environment, and parent/community involvement.

- **Public and Professional Education.** Funds have been allocated to develop consistent health behavior messages across the state to raise awareness and motivate behavior change. This educational campaign will contain multiple components, including (but not limited to) traditional media, Internet-based approaches, and grassroots education.
- **Surveillance and Evaluation.** Funds have been allocated to create the Hawaii Outcomes Institute (HOI). This group will conduct an independent evaluation of HHI, create community health profiles, and serve as a data warehouse for health-related data in Hawaii.

To create measurable geographical categories, HHI divided the state into 46 distinct geographical regions based on high school catchment areas. These divisions were used for school and community programs and facilitated evaluation because the amount of exposure a person could get from the program could be calculated by zip code.

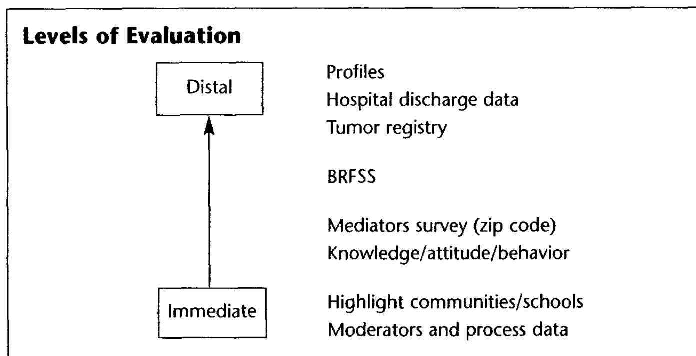
Step 3: Focus the Evaluation

Because of the complexity of HHI, DOH sponsored a conference for international physical activity experts to help design the evaluation. As a result of this 3-day conference, eight recommendations for evaluation were proposed.

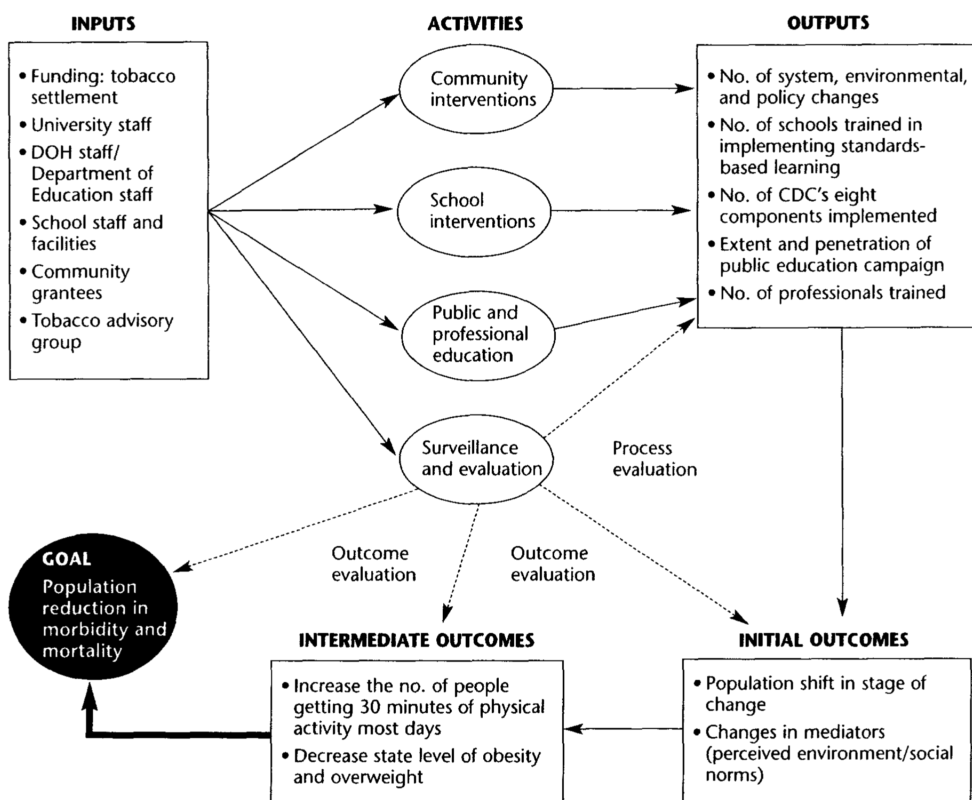
- Allow HOI to centrally guide the evaluation.
- Focus the evaluation on a limited number of target communities.
- Focus the major survey collection efforts on the Hawaii BRFSS.
- Form a technical advisory committee soon.
- Don't compromise quality for speed in entering the field.
- Keep the evaluation design simple.
- Keep the reporting requirements for community grants simple.
- Focus, focus, focus.

The final words of advice from the committee were
"Do fewer evaluations better."
"Do good process evaluation always, good impact evaluation sometimes."

The HHI evaluation team has been working for the last year to implement the recommendations of the expert panel. The evaluation is centrally guided by HOI under the direction of Jay Maddock, PhD, and Claudio Nigg, PhD, University of Hawaii. The evaluation design is simple. Process data is collected from all grantees using the University of Kansas (UK) Community Tool Box and tools developed by HOI. Intense, "highlight" evaluations are being conducted on six school and six community grantees. To supplement these data, a cross-sectional, longitudinal survey will be conducted in January 2002 and every 6 months thereafter. This survey will measure the mediators of change including stage of change, self-efficacy, perceived environment, attitude, subjective norm and benefits, and barriers for the three target behaviors. BRFSS will be used as the main behavioral outcome assessment, with the other 49 states serving as comparison groups. Tumor registry and hospital data will be used to measure the long-term impact of the program.



Healthy Hawaii Initiative Logic Model



Step 4: Gather Credible Evidence

A multilevel design was implemented to measure the effectiveness of the HHI. This included

- Process analysis of all grantees.
- Further in-depth analysis of highlight schools and communities.
- A statewide survey to measure initial outcomes (i.e., stage of change, knowledge, attitude, perceived environment).
- BFRSS (main behavioral outcome; sample size = 6,000).
- Morbidity and mortality indicators (hospital data, Hawaii Tumor Registry).

Evaluation Questions	Indicators	Data Sources	Performance Indicators
Were the project components implemented as planned?	CDC's eight components implemented in schools Percentage of community action plans completed Media penetration	University of Hawaii process tracking UK Community Toolbox Media survey	At least 6 of 8 CDC components implemented in all grantee schools All communities have implemented at least one structural or environmental change 50% recall of HHI message
Did the mediators of behavior change?	Stage of change Self-efficacy Perceived environment Attitudes Social norms	Statewide mediator survey	Significant population change for these measures
Did the target behaviors change?	Percentage of smokers Percentage of people physically active at least 30 minutes a day most days of the week Percentage of people eating ≥5 fruits and vegetables a day	BRFSS	Significant population change for these measures

Step 5: Justify Conclusions

Data will be analyzed in waves over the next several years. The first component will be an analysis of treatment fidelity. Process data from the three program areas will be analyzed, and each of the 46 catchment areas will be rated on the intensity of their intervention. A statewide summary for the end of each year (starting in 2002) will be developed to assess overall exposure to the program. Once this is complete, the mediators' survey will be analyzed to assess movement in the stages of change and other relevant behaviors on the target variables. The survey is designed to yield reliable estimates for all six of the islands in the state and to compare communities with grants to control communities. Finally, BRFSS data will be compared longitudinally with the other 49 states to assess trend changes in

the target behaviors. With population-based data, any significant change in the prevalence of the target behaviors (+1%) will have an important impact on the health of the state. For instance, a 1% decrease in the statewide prevalence of physical inactivity will equate to 8,700 people statewide.

Step 6: Ensure Use and Share Lessons Learned

With a large project like HHI, key stakeholders must be kept interested and motivated. Although we are just beginning our evaluation, we have developed several strategies to ensure continued success and share lessons learned.

- **Grantees.** Because of the numerous school and community grantees, we must maintain enthusiasm for the program, celebrate successes, and share lessons learned. Our evaluation of the highlight schools and communities will be used to feed information back to other grantees on what does and does not work well. This process should provide continual feedback to the grantees. Also, successes by the grantees will be highlighted in many ways, through community newsletters, grantee meetings, and public education. We feel these are important efforts to help grantees feel they are learning from each other and are not working in isolation. This information will also be fed back to DOH to guide future calls for proposals.
- **HHI staff.** Because of the many people at DOH and other organizations working on this project, feeding back information on successes and barriers is important. In addition to timely reporting of results, we are implementing a yearly survey with key stakeholders to assess their biggest successes and challenges of the past year and to ask them what could be done to make HHI more effective. This information will then be fed back to the team using summary data.
- **Legislators and community members.** HOI will develop a yearly summary of the progress of HHI to highlight the year's major accomplishments. The summary will be delivered to state legislators and interested community members to inform them of HHI's progress and future directions. In addition, periodic press releases will be written to inform the public of major milestones.
- **Professional dissemination.** HOI staff will prepare technical reports, conference presentations and reports, peer-reviewed publications, and book chapters to keep health professionals informed of HHI's progress. We believe informing public health officials throughout the country about methods to evaluate change in statewide programs is important, and this will be a cornerstone of our effort in this step of the evaluation.

This case study was prepared by Jay Maddock, PhD, and Claudio Nigg, PhD, University of Hawaii; and Angela Wagner, MPH, Hawaii State Department of Health. The authors would like to acknowledge the Hawaii DOH, which funded this evaluation through the Tobacco Settlement Fund; Bruce Anderson, PhD, and Virginia Pressler, MD, of HOI; the members of the HHI team who dedicated long hours to the development of the HHI; and Susan Jackson for her helpful comments on a earlier version of this case study.

Case Study 3: *Take Our Trail* Campaign[§]

This evaluation case study is an example of a program designed to create or enhance access to places for physical activity, combined with informational outreach activities, which is an intervention strongly recommended by the Task Force on Community Preventive Services to promote physical activity (see Appendix 2).

Step 1: Engage Stakeholders

This evaluation, which was planned simultaneously with the *Take Our Trail* campaign, included input from representatives of the following groups of stakeholders:

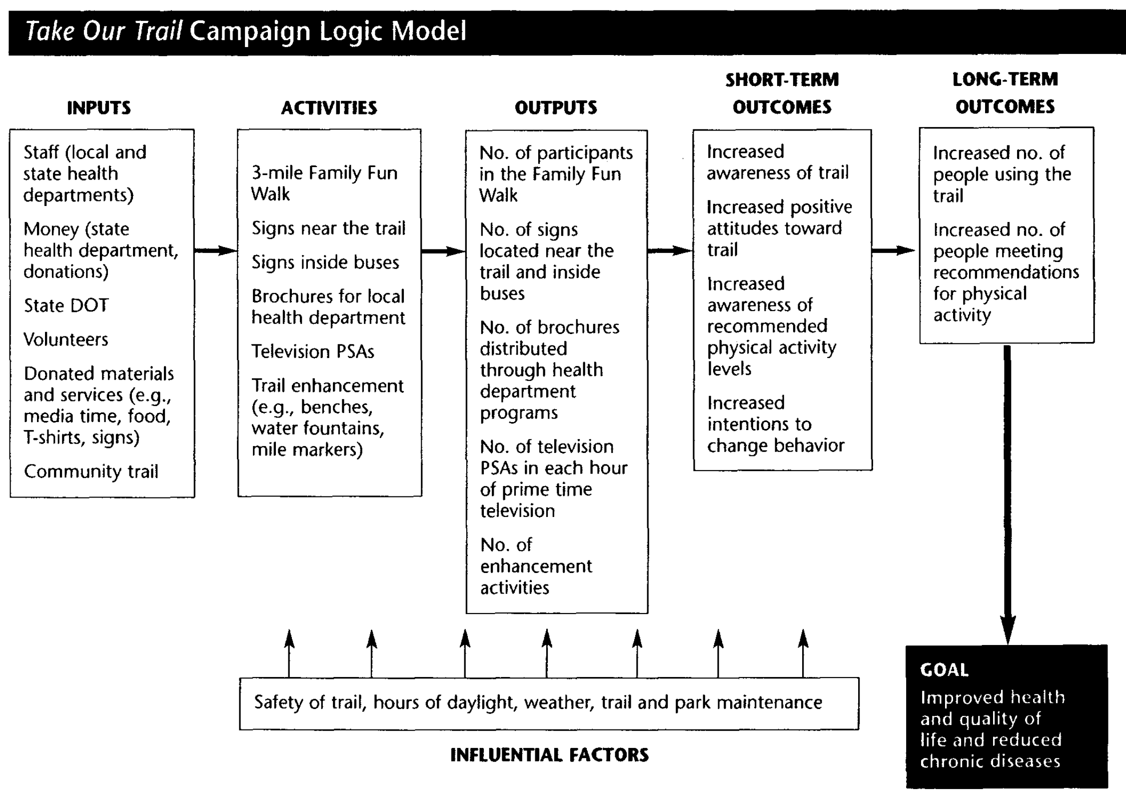
- Public health professionals—nurses, health educators, and outreach workers at the local health department.
- Local businesses—a local advertising firm made signs for free; donors contributed free food and T-shirts; and a local television station ran public service announcements (PSAs).
- Local nonprofit organizations—American Cancer Society, American Heart Association.
- Other local governmental agencies—city government and the Missouri Department of Transportation (DOT), Department of Parks and Recreation, and Department of Education.
- People who use the trail—representatives from walking, jogging, and cycling clubs; nearby work sites; and community residents.
- People who helped build the trail—community Heart Health coalition; community members who donated land, money, or other resources; city government (mayor, city clerk); and local businesses.

Step 2: Describe or Plan the Program

In 1997, data from the state BRFSS indicated that 60% of the state's population was overweight and 65% were not sufficiently active to meet public health recommendations. To address this health problem, state officials—with help from a community Heart Health coalition—funded construction of walking trails in two communities in 2000 through the state DOT. Community members, businesses, and city government donated additional funds. Although no formal evaluation was initially conducted, DOT staff members heard that the trails were underused because of safety concerns and lack of certain amenities (e.g., playground equipment or well-maintained restrooms). When other communities began requesting funds to build trails, state officials needed to know if the investment was worthwhile. To promote use of existing trails, state officials funded the local health department in one of the communities with a newly constructed trail to conduct an awareness campaign and trail enhancement activities. If community members were not more physically active after having both access to a walking trail and information about the trail and the benefits of regular physical activity, then state officials would probably not fund additional trails.

[§] This case study is based in part on activities occurring in southeast Missouri.

The resulting *Take Our Trail* campaign was conducted for 3 months in late spring 2001 by the health department and the Heart Health coalition. The campaign kicked off with a 3-mile Family Fun Walk, with T-shirts and refreshments donated by local businesses. For the length of the campaign, signs were strategically placed in busy areas throughout the community to raise community members' awareness of the trail. A small, simple brochure was developed and provided to all programs in the local health department to distribute to their clients, as well as to clinics, physician offices, church leaders, and the Heart Health coalition. The brochure contained information on the importance of physical activity, tips to increase walking, safety, the trail, and who to contact for walking club information. The local television station created a public service announcement to promote the trail and the importance of regular physical activity during the evening news. The public transportation system placed signs inside their buses encouraging riders to *Take Our Trail*. The Heart Health coalition helped develop walking clubs at work sites, churches, and social organizations. These clubs established times and days for club members to meet and walk together on the trail. Local law enforcement officials agreed to patrol the walking trail periodically. The coalition also worked with local businesses, city government, and churches to raise money to enhance the trail, adding amenities such as lights, benches, mile markers, painted lanes, and a water fountain.



Evaluation Questions	Indicators	Data Sources
What activities were actually conducted as part of the *Take Our Trail* campaign?	Number of bus signs Number of PSAs Number of newspaper articles Number of minutes of television coverage/promotion Number of brochures distributed Number of community events held at trail Number of community members at trail events Number of walking clubs formed Number of trail enhancements (e.g., benches, water fountains, restrooms, lights, mile markers, painted lanes) Hours of trail patrol by police force	Event logs Media review
Did trail use increase as a result of the *Take Our Trail* campaign?	Number of users before, during, and after the campaign in *Take Our Trail* community Number of users before, during, and after the campaign in control community with a trail Busiest time for trail use Awareness of campaign materials and messages	Electronic counter Observation Telephone survey
Who uses the trail, both before and after the campaign?	Demographics of users: age, race/ethnicity, place of residence, place of employment	Interviews with walkers on the trail Key stakeholder interviews Electronic counter with card reader
How much do trails, increase physical activity levels of community members?	Percentage of community who achieved recommended levels of physical activity before and after the campaign in communities with trails Percentage of community who achieved recommended levels of physical activity before and after the campaign in the control community without a trail Trail users' perceptions of the effects of the trail on their physical activity behavior	Modified BRFSS telephone survey Interviews with walkers on the trail

Step 5: Justify Conclusions

In general, the 3-month walking trail counter results indicated increased trail usage in the *Take Our Trail* community. The *Take Our Trail* community had a 35% increase in trail use between 1 month before and 1 month after the campaign, compared with a 10% increase in the community without the campaign. Initial walking trail counter data indicated that trail usage was highest on weekday mornings and lowest at night, on weekends, and in inclement weather. Data from the walking trail counter also indicated that trail usage was higher during *Take Our Trail* events in the campaign community. Usage increased more when walking clubs were formed in both communities (several walking clubs formed naturally in the control community and were recorded in the event log system), but the

increase in the *Take Our Trail* community was significantly higher. In the final month of counter data collection, lunchtime trail usage increased, coinciding with formation of work site walking clubs. In addition, Sunday afternoon and Wednesday evening usage increased when church-based walking clubs were formed.

Interviews with stakeholders indicated that persons in the campaign community felt safer while walking, compared with the community with a trail and no campaign, because of walking with partners (e.g., walking clubs), trail lights, and police patrols. Approximately 60% of trail users in both communities indicated an increase in walking since the trail existed. Most walkers and stakeholders felt the trail was an asset to their community and a source of community pride because it provided a free place for people to exercise.

All types of people used the trail. Walkers were more likely to be women, older adults, athletes recovering from injuries, and persons with medical conditions that required a low-impact activity. Those who used the trail generally felt safe while using it. The perception of safety increased in the *Take Our Trail* community after lights were added and police surveillance increased. Trail users in the *Take Our Trail* community had more positive responses to the interview question about trail likes and dislikes than did the comparison community. When asked how they became aware of the trail, most respondents indicated that they lived or worked near the trail or had heard about it at church or work or from friends or family. Some learned about the trail from their doctors. Few trail users had seen the fliers or PSAs and were generally unaware of the promotional campaign.

The 1-year follow-up phone survey indicated a 5% increase in the number of persons meeting the physical activity recommendations in the *Take Our Trail* community, a 2% increase in the other community with a trail, and a 1% decrease in the community without a trail. Although these numbers are small, they could result in larger changes if the trends continue. For example, in 3 years, the community without a trail could have a 3% total decrease in the number of persons meeting the physical activity recommendations, whereas the *Take Our Trail* community could have a 15% increase—a substantial improvement over the current rate.

Step 6: Ensure Use and Share Lessons Learned

Results of this evaluation indicated that construction of walking trails increased physical activity and implementation of a campaign to promote trail usage increased physical activity more by increasing use of the new trail. These findings were shared with DOT, with a recommendation to build additional walking trails and support campaigns aimed at increasing trial usage. The report to DOT also suggested that the focus of these campaigns should include community-wide involvement in promoting the trail and walking and enhancement of the trails. The most effective way to reach people is through the organizations they are affiliated with and through members of their social networks. Increasing safety and security is a must.

Another positive, unexpected result resulted from this evaluation. Community members, church leaders, and civic leaders worked together to determine methods for providing indoor walking areas to be used during cold winter months and other times when the weather prohibits outdoor walking. This included several churches and a community center installing marked indoor walking areas in their buildings and allowing access to nonmembers.

This case study was prepared by Rashida Dorsey; Robyn A. Housemann, PhD, MPH; Imogene Wiggs, MBA; Ross C. Brownson, PhD; and Bernard Malone, MPA, of the Saint Louis University Prevention Research Center and Missouri Department of Health and Senior Services.