getting australia active II

An update of evidence on physical activity for health

August 2004

SigPah

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NATIONAL PUBLIC HEALTH PARTNERSHIP

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BACKGROUND

THE DEVELOPMENT OF A NATIONAL PHYSICAL ACTIVITY STRATEGY AND ACTION PLAN

In August 2003 the National Public Health Partnership (NPHP) sought expressions of interest through the work of SIGPAH[1] to assist in Phase 1 of a work program aimed at the development of a National Physical Activity Strategy and Action Plan. The SIGPAH program of work involves three phases:

- Phase 1 – An update of the literature to identify gaps and recommend on key areas for development and new investment areas in capacity building and health gain areas. The focus of this update is on the past three years (2000–2003), using the resource *Getting Australia Active* (Bauman et al 2002) as a basis for the update. The findings and recommendations from the update will identify the critical issues to drive new directions for physical activity and provide the evidence baseline for the proposed National Physical Activity Strategy and Action Plan.
- Phase 2 – Consultation, collaboration and planning workshops with key stakeholders, across all relevant sectors and in all jurisdictions. Consideration is to be given to ways to strengthen engagement with all disciplines, national groups and projects involved in promoting physical activity including the disadvantaged, all age ranges and Aboriginal and Torres Strait Islander groups.
- Phase 3 – Draft a National Physical Activity Strategy and Action Plan.

Phase 1: Consultancy to update the literature/evidence-base on physical activity and health

A collaborative research consortium received support to undertake Phase 1 and review the literature and evidence base on physical activity and health. The process was undertaken between September and December 2003. A Steering Group consisting of SIGPAH members was formed to oversee the project.

Terms of Reference

The project involved providing an update of the literature and evidence with a specific focus on the past three years (2000–2003) and using as a framework the documentation and structure of *Getting Australia Active*. The work included two new sections: a review of other existing strategy and policy documents, especially those related to public health and physical activity; and an international review of policy on physical activity adopted or under development in other countries. The findings from the evidence would be reviewed to identify critical issues that would drive future directions for physical activity and provide the evidence-base for the proposed development of a National Physical Activity Strategy and Action Plan.

The literature update for *Getting Australia Active II* will include:

- A recent review of published and unpublished international literature, including reports and evaluation of national strategies, particularly those relevant to public health and physical activity.
- A recent review of relevant NPHP, Commonwealth and national (Australian) strategy-related literature, including strategy evaluation documentation and indicators of success of national strategies.

[1] The Strategic Inter-Government forum on Physical Activity and Health (SIGPAH) was established in 1999 under the auspices of the National Public Health Partnership, as the collaborative body to coordinate a national approach in supporting health-promoting physical activity in Australia. SIGPAH provides national leadership for government action in physical activity and health issues across Australia and seeks to encourage all Australians to be physically active to improve health and well being. It has representation from all state and territory health departments, the Commonwealth Department of Health and Ageing, and the Australian Institute of Health and Welfare.

- An analysis of the issues coming from more recent interventions with recommendations on options as to how best to proceed through an integrated national strategy.
- Specific attention to the relevance of the international literature to the Australian setting.
- Consideration given to a public health and physical activity policy context, that is, cognisant of state/territory/Commonwealth strategies relevant to physical activity.
- Acknowledgement of the work of the National Obesity Task Force.
- Review of the critical issues from the evidence and recommend on key priority areas that will inform the new national strategic directions for physical activity and form the baseline to the proposed National Physical Activity Strategy and Action Plan.

Getting Australia Active II

The publication *Getting Australia Active*, launched in 2002, represented a comprehensive synthesis of the state-of-the-art of physical activity promotion (Bauman et al. 2002). Designed primarily for health, health promotion and exercise science professionals, the information and evidence-base enabled physical activity stakeholders to guide better practice, engage potential partners and advance the physical activity agenda.

This report, *Getting Australia Active II*, represents an update of *Getting Australia Active* and is the final report submitted by the consultancy team for Phase I of the NPHP project to develop a National Physical Activity Strategy and Action Plan.

Section 1

Update of the Epidemiological Evidence on Physical Activity and Health

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SECTION 1

UPDATE OF THE EPIDEMIOLOGICAL EVIDENCE ON PHYSICAL ACTIVITY AND HEALTH

Summary

Physical activity is developing a place as an important part of health sector investment, but constant referral to the evidence base is needed to justify this position. This section updates the epidemiological evidence that physical activity confers a positive benefit on health and reduces risks of ill health, using research studies in the peer reviewed scientific literature published between 2000 and 2003. This review focuses on evidence for health gain among adults who are active, compared to those who are inactive. Areas covered include cardiovascular disease, diabetes, stroke, mental health, prevention of falls and obesity.

There have been several new studies on physical activity and all-cause mortality, which have replicated previous findings, and are consistent with Australian national physical activity recommendations. One important Danish study in particular provided evidence that cycling to work reduces all-cause mortality risk, providing the first clear and positive evidence regarding active commuting.

The association between physical activity and cardiovascular disease has been observed and replicated over five decades of research, and shows a graded relationship, with the maximal risk reduction observed among the inactive who move to becoming at least moderately active. Recent papers since 2000 have added to our understanding of this relationship, especially with a strengthening of the evidence that moderate and brisk intensity walking reduce the risk of cardiovascular disease, and in two studies, at least as much as vigorous activity. However, there are still individual researchers that find that only vigorous activity is cardio protective, but these studies have some major methodological limitations. The evidence-base for women, older adults and special populations has strengthened, with consistent and very similar evidence as for previous studies that moderate intensity activity on most days provides the most risk reduction. There has been little published about physical activity and stroke prevention during this recent period, and this evidence remains somewhat more difficult to interpret clearly in policy terms, compared to the consistent evidence for coronary heart disease.

Cancer prevention studies have proliferated during this period, but the certainty of the evidence-base is balanced by studies that do and do not show protective effects of physical activity. The best evidence remains for colon cancer, with better evidence accumulating for breast cancer prevention (and especially among postmenopausal women). Evidence for physical activity benefits with other cancers remains mixed, although four out of five studies of lung cancer suggest such a relationship, without any clear putative biological mechanism. The evidence remains mixed for endometrial cancer, testicular cancer, prostate cancer and ovarian cancer.

Key evidence has accumulated in the diabetes prevention arena since 2000. There are now large scale prevention trials in China, Finland and the United States that have demonstrated that a combination of modest weight loss, diet and meeting the moderate physical activity recommendations can confer a 50–60% reduction in risk of developing diabetes among those already at high risk. These and other studies emphasise the importance of population levels of physical activity in preventing type 2 diabetes.

Other areas, such as mental health, have had less research in the period reviewed by this work. Four review papers describe the mental health benefits of being active, but all attest to the methodological limitations of the research conducted to date, and the limited inference possible in this area. Although widely thought to be beneficial to different aspects of mental health, the evidence base for physical activity is poor in terms of the quality of evidence. Similarly, no major new evidence in the area of falls prevention have been published during this period, although that which previously existed is quite compelling, and risks of falls in the elderly

are consistently reduced among those exposed to balance training, muscle strengthening and physical activity interventions.

In summary, this review has further strengthened the epidemiological evidence-base for physical activity and health, with the most exciting new information in the diabetes prevention realm. Key evidence has accumulated in the diabetes prevention arena since the year 2000. There are now large scale prevention trials in China, Finland and the United States that have demonstrated that a combination of modest weight loss, diet and meeting the moderate physical activity recommendations can confer a 50–60% reduction in risk of developing diabetes among those already at high risk.

Introduction

This document updates the evidence on physical activity and health studies since the previous publication of *Getting Australia Active*. This epidemiological review emphasises and presents studies published since 2000, on each key area where physical activity is thought to be of benefit. For each of these, a summary statement is made, regarding changes to the evidence in the past few years. Then selected key papers are presented in summary format, with details of the study design, measures of physical activity and health outcomes, and major findings are summarised. The relevance of each of these in detailed reviews of individual papers is then set in context, discussing what it contributed to the evidence base for understanding physical activity and health.

Over the past few years physical activity has been integrated into national health priorities and the purpose of this epidemiological review is to update the evidence base underpinning these recommendations. Physical activity is now recognised as important by a range of national and international agencies, including the World Health Report in 2002 (WHO 2002). Here physical activity was among the leading 10 causes of preventable mortality in developed countries, and contributed to around a quarter of coronary heart disease, and between one-eighth and one-sixth of cases of stroke, breast cancer, colon cancer and diabetes.

Ongoing research needs to continuously update the evidence for the relationship between physical activity and specific health outcomes. This review focuses on adults; predominantly those aged 18 to 65, although there is some evidence for older adults as well. Another recent review has explored the evidence for older adults, and it seems similar in many ways to that for all adults (Bauman, In press). This update did not look at children and adolescents. Other work by the Australian Government involves developing recommendations on physical activity for Children and Youth and preparatory work involved a major review of the literature by Dr Stewart Trost (Trost 2003).

Methods

This review used multiple electronic databases, including NIH PubMed, Medline, Current Contents, Cinhal, Psychlit and the evidence-based directories (Cochrane, DARE). Studies since 2000 were sought using previously defined search approaches (Baumann et al. 2002). Population-based studies, rather than evidence from clinical or small-scale trials, are the primary emphasis of this review. More than 200 recent articles were considered for the review, and about a quarter of them were read and critically appraised for this update. Additional articles (such as for the cancer review) have been recently appraised, and this process was not repeated, but a brief summary presented here. For some health outcomes, no major or seminal new studies have been published 2000–2003, so these areas are discussed, but no new studies are reviewed. The objective is to continuously update key studies or aspects of this physical activity and health 'evidence-oriented review' on an annual basis, and to make these available on the Web.

Issues of Measurement of and Trends in Physical Activity and the Accumulation of Evidence

There have always been complexities in the measurement of physical activity and fitness in relation to health outcomes. The literature has been concerned over many years as to whether it was leisure time physical activity or cardio-respiratory fitness which conferred the health benefit, and

the differences are relevant to policy. The current methodological and policy-related concerns are that leisure time physical activity only represents a small amount of the total energy expended by humans each day. Although most of the epidemiological evidence is based on assessments of self-reported leisure time physical activity measurement, a broader range of exposures to estimates of energy expenditure are now thought to be potentially important. These include the broader concepts of 'activities of daily living', including the accumulation of incidental physical activity in as many ways as possible. The broadening of measurement of physical activity as an exposure variable has yet to be tested in epidemiological research, but it is likely that the future of evidence will involve studies with exposure (activity) measures in this way.

In many developed countries, population levels of leisure time physical activity participation have not changed in recent years. It is even more likely that incidental activity or energy expenditure attributable to activity from daily living has declined over recent decades, and as such has contributed to the epidemic increase in obesity, which has occurred world-wide. Data for Australia are somewhat limited, but in the late 1990s physical activity trends in Australia were static or declined (Bauman et al. 2003). No national physical activity surveys have been conducted since 2000.

1.1 Physical and all-cause mortality

This section explores new studies which have examined the relationship between physical activity or fitness and all-cause mortality. This builds on the already existing base of population studies, which have observed an inverse relationship between physical activity and all-cause mortality; those who were more active had lower rates of death. A recent summary of published epidemiological studies (Lee and Skerrett 2001) confirmed that there was a consistent dose response relationship between activity and all-cause mortality, with a typical risk reduction of around 30% for those achieving the recommended levels of at least moderate intensity physical activity on most days of the week. Furthermore, the maximum population benefits on all-cause mortality appeared in moving people from being in the most sedentary group to the middle of the physical activity or fitness distribution curve (at least 'moderately active').

The studies below illustrate some of the most recent findings in this area, with a short summary of the design, measures of physical activity, and outcome measures used. The main findings are then summarised, using odds ratios or relative risks to indicate the benefits or risks of activity or inactivity. Each study description concludes with a statement about the implications of this study in adding to the body of knowledge in this area.

Andersen (2000) Ann Int Med.

This paper described outcomes from three cohort studies of 31,896 adults in Copenhagen. The approximate follow up was around 14.5 years. Physical activity measures included estimates of work-related physical activity, leisure time physical activity, sports and active transport, measured as single questions or short indexes. The outcome factor was all-cause mortality. The results suggested that, in these cohorts, body mass index levels between 25 and 30 were non significant as a risk factor for all-cause mortality among males and females. However a body mass index of >30 was marginally significant for males, relative risk 1.21 (1.1–1.3) and for females 1.43 (1.28–1.59).

Cholesterol level was not significant except for a marginal significance for cholesterol greater than 6.9 among males. Leisure time physical activity was categorised into 'high', 'moderate' and 'low' groups. In all ages, relative risks showed a significant graded risk reduction (1, 0.65, and 0.59 for females; 1, 0.72 and 0.71 for males). The most active categories of work-related physical activity also showed a decreased risk, and the relative risk among those who cycled to work for more than three hours a week was also significant, with a 30% lower risk of all-cause mortality, RR 0.70 (0.55–0.89).

This study showed similar risk reduction to other Scandinavian studies using similar leisure time physical activity measures for those all-cause mortality and cardiovascular disease outcomes. The relationship showed a dose response pattern with additional benefits for heavy occupational physical activity and, independently, for cycling to work.

Crespo CJ (2002) Annals of Epidemiology

This study examined the Puerto Rico Heart Health Cohort enrolled in the 1960s and comprised of middle-aged males. This paper reports data from 9136 males followed for an average of 12 years.

Physical activity measure: This study used the Framingham physical activity index which approximated to a one-day 24-hour recall of all activity and the population was divided into quartiles.

Outcome factor: All-cause mortality

Results: Physical activity was associated with a reduced risk of all-cause mortality with the relative risks across quartiles being 1.0, 0.68, 0.63, 0.55 from the most sedentary quartile to the highest quartile. This indicated that there was approximately a 45% risk reduction in the most active group compared to the least active, but that most of the benefit accrued in moving those who were sedentary to those who were somewhat more active (a 32% risk reduction). This relationship was almost identical across categories of body mass index, such that similar physical activity benefits accrued to those who were overweight or obese. In this study, body mass index was weakly related to mortality, and there was no significant association between all-cause mortality in those who were obese compared to those who are in a healthy weight range.

With respect to physical activity quartiles, there was a survival advantage for those who were at least slightly active. Compared to the most sedentary quartile of Puerto Rican males, the next most active quartile had accumulative survival that was around three years longer. This study demonstrated the benefits of activity in a Puerto Rican sample, and demonstrated the relative importance of physical activity, compared with overweight/obesity in mortality risk reduction.

Gregg, E.W. (2003) JAMA

This study was concerned with a change in physical activity and its impact on all-cause mortality amongst older women. The study was derived from a cohort assembled in four United States cities, and was comprised of women aged 65 years and older who were followed up for six years on average. The size of the cohort was 7553 older women.

Physical activity measure: This study used the Harvard Alumni questionnaire which included reported measures of city blocks walked and stairs climbed and other leisure time activities, which summated to the a physical activity index. The change in physical activity score was also computed. The study investigated outcomes for those that had previously increased or decreased their physical activity.

Outcome factor: The outcomes studied were all-cause mortality, cardiovascular death and cancer deaths.

Results: Physical activity was divided into quintiles (five equal groups) in this population and showed a dose response relationship with all-cause mortality. Across quintiles the relative risk of death from all-causes was 1.0, 0.73, 0.77, 0.62, 0.66. A very similar relationship was observed for cardiovascular outcomes. A change in physical activity, defined as those who became active or maintained activity levels had around 0.6 the risk of all-cause mortality compared to those who stayed sedentary. Those who became sedentary had outcome rates similar to those who remained sedentary. The effects were similar across self-rated health status categories, but stronger among a slightly younger group, those aged 65–74 years old, compared to those aged older than 75.

Wannamethee SG (2000)

This study examined the relationship of physical activity as all-cause mortality in older men with diagnosed cardiovascular disease. The study enrolled a cohort of 7735 with coronary heart disease through British general practitioners in the late 1970s and followed them up for between 12 and 14 years.

Physical activity measure: Usual pattern of leisure time physical activity, including walking or cycling and sporting and more vigorous activities. Outcome factor was age adjusted all-cause mortality.

Results: There was a dose response reduction in all-cause mortality risk across physical activity categories. This graded relationship was similar for men of all ages, and similar if stratified by cardiac symptoms. The relationships were similar for all-cause mortality and for cardiovascular deaths. High

levels of physical activity, which included walking, reduced the risk of all-cause mortality compared to those who are inactive. Walking was protective if more than 40 minutes a day, for all-cause mortality (RR=0.48) and for cardiovascular deaths (RR=0.39). Moderate or heavy gardening was also protective, producing all-cause mortality by 41% and cardiovascular deaths by 53%, with no significant impact for light gardening. Leisure time physical activity across categories from high to low showed a dose response relationship reduction in relative risk for all-cause mortality (1, 0.45, 0.41) and for cardiovascular disease deaths (RRs: 1, 0.41, 0.39). It was also evident that changes in physical activity were beneficial, although this did not quite reach statistical significance: those who were inactive and became moderately active had a 42% risk reduction of all-cause mortality (RR 0.58, 95% CI 0.33 to 1.03) but the p value was 0.06.

This population-based sample of British males showed a risk reduction consistent with other studies, but this was in men with established coronary heart disease so provides some evidence for the secondary and tertiary prevention impact of being active. Evidence is provided for regular moderate physical activity, carried out in leisure time, but only for walking of at least 40 minutes duration and only for more vigorous gardening.

Lee (2000) American Journal of Epidemiology

This study reports information from the Harvard Alumni Cohort followed up to 1992.

Physical activity was measured by self-report, using the Harvard Alumni physical activity measures.

Outcome factor: All-cause mortality.

Results: There was a dose response relationship with increasing energy expenditure categories. The relative risk across energy expenditure categories, starting with the most inactive of less than 4200 kilojoules per week were 1, 0.8, 0.74, 0.8, 0.73, which were all significant. With respect to walking, only those attaining at least 20 kilometers a week of walking showed a decrease in risk; for stair climbing only those who climbed at least 20 flights of stairs a week showed a reduced risk of all-cause mortality. Light physical activity showed a non-significant relationship even for those expending 6300 kilojoules per week, and moderate physical activity showed a somewhat inconsistent relationship. Vigorous physical activity was clearly protective in reducing risk of all-cause mortality for those participating in at least 1680 kilojoules of leisure time activity per week. This study provides evidence for a dose response relationship, but does not clearly support moderate physical activity alone; it demonstrates the substantial benefit of adding vigorous activity to moderate intensity leisure time physical activity.

1.2 Physical activity and Cardiovascular Disease

1.2.1 Physical Activity and Cardiovascular Disease Overview

The relationship between physical activity and cardiovascular disease is well recognised, and shows a consistent dose response relationship. This is for both incident and fatal cardiovascular disease, and seems to be evidenced for both self reported physical activity measures as well as assessments of cardio-respiratory fitness. The population risk reduction appears maximal for increasing physical activity or fitness among those who are sedentary (or unfit) and moving them to the recommended moderate intensity physical activity level suggested in the national Australian physical activity guidelines.[2] It is still clear that there may be further benefits[3] for those who undertake increased volume and intensity physical activity (of a more vigorous nature), and some independent benefits also attributed to resistance training.

Despite the existence of systematic reviews in 1987 and 1990 there remains some controversy regarding the amount and intensity of physical activity for cardiovascular health (Wannamethee 2001). Recent studies reaffirm that the dose response relationship

[2] Or to the middle of the distribution curve of fitness for the population; a recent meta analysis suggested that this shift in fitness is more cardioprotective than a similar shift in reported physical activity from sedentary to moderately active (Williams 2002).

[3] Note that two studies of walking and CHD outcomes suggest that walking, among women, is as cardioprotective as some vigorous activity alone (up to 100 mins per week).

between physical activity and cardiovascular disease is real, and also show that similar benefits are seen among women and also among older adults. There are also several recent studies on the cardiovascular benefits of moderate intensity walking (Manson 1999; 2002). The amount of walking is variously defined for risk reduction, and has been characterised as 'at least 1.5 miles per day', '10 miles per week', or '3 hours per week' in different studies, most of which are consistent with the '30 minutes of moderate intensity activity on most days of the week' national recommendations.

The recommendations and guidelines regarding the hazards and risks of physical activity have not changed in the past four years. Vigorous physical activity in untrained middle aged and older adults may still pose risks, particularly of sudden cardiac events. These are rare in the population overall, and are much less common than musculoskeletal and other injuries. Nonetheless the risks of hazardous events are very low among those adopting moderate intensity forms of physical activity in terms of cardiovascular outcomes. There has also been very little update in the secondary and tertiary prevention area, where comprehensive cardiac rehabilitation is thought to be effective in reducing cardiovascular mortality, but no new trials have examined 'exercise only' in this population group.

There have been a few studies furthering the evidence that physical activity improves other cardiovascular risk factors, such as reductions in systolic and diastolic blood pressure (Kelley 2001) and also impact upon lipid levels, serum insulin, and on cardiac endothelial function (Hambrecht 2000; 2003). There is also evidence that even short bouts of physical activity, such as stair climbing, may impact on cardiovascular risk factors in a favourable manner (Boreham 2000).

There is little evidence that is new to further the debates about physical activity and the risk of stroke. There is an ongoing suggestion that physical activity may protect against ischaemic stroke, but this evidence has been mostly among males.

The methods used in this review are narrative. For each recent and important study, details of the sample, study and outcome factors and main findings are presented and critically appraised. The implications of each reviewed study are made in terms of what this study has added to the evidence base.

1.2.2 Recent Studies of Cardiovascular and Coronary Heart Disease outcomes

Manson (2002) New England Journal of Medicine

This important paper is described in detail as it has influenced recent thinking about walking and CVD risk. The study explored the relationship between walking and/or vigorous physical activity and subsequent cardiovascular events in women, as part of the Women's Health Initiative Observational Study; 73,743 women, aged between 50 and 79, were enrolled in this study. The mean follow up was 5.9 years, providing 232,971 person years of exposure. This analysis excluded those with cardiovascular disease or cancer at baseline, or those who were non-ambulatory.

Physical activity measure: Baseline self-reported recreational physical activity, comprised of walking and moderate and vigorous activities.

Outcome: Diagnosed coronary heart disease either myocardial infarction or cardiovascular deaths or total cardiovascular disease events.

Results: The results showed a strong graded relationship with cardiovascular disease. For total physical activity, examining the quintiles in MET-hours[4] the relative risks[5] of cardiovascular events were 1, 0.89, 0.81*, 0.78*, 0.72*. For walking, quintiles in MET-hours also showed a graded risk reduction; RRs: 1, 0.91, 0.82*, 0.75*, 0.68*. Finally vigorous physical activity on its own (in quintiles of MET-hours) also showed a graded response, but was only significant for the highest quintile, with a 24% CVD risk reduction (RRs: 1, 0.91, 0.81, 0.85, 0.76*).

For the total physical activity score, significant risk reduction was clear by middle of the distribution

4 METs = multiples of basal metabolic energy expenditure

5 Asterisks indicate significant relative risks (either risk reduction or risk increase)

curve of weekly walking time (the third quintile), which approximated 10 MET-hours a week. This is equivalent to around half an hour of moderate intensity physical activity every day. For walking, compared to non-walkers, there was a benefit at about 4 MET-hours a week and stronger evidence of risk reduction at around 7.5 MET-hours a week. This approximates to half-an-hour of moderate intensity walking around 4 times a week.

This study also tested for effect modification, to examine whether the relationship was similar across different population groups. The graded risk reduction was very similar for total physical activity or walking when examined by racial grouping (white or black women), or within age groups and across body mass index categories.

This well designed study provides important policy information, as it demonstrated that there was clear evidence of risk reduction for walking and for moderate activity, which appeared to be as great as that conferred by vigorous physical activity alone. For example there was similar level of risk reduction if a participant reported no vigorous physical activity but walked up to 2.5 hours per week (relative risk 0.70*) or more than 2.5 hours per week of walking (relative risk 0.67*). This compared with doing up to 100 minutes per week of vigorous activity but zero walking (relative risk = 0.71*). There was a relationship with 'walking pace', such that respondents needed to walk at least 2 or preferably 3 miles an hour (3.2 to 4.8 km/hour) to achieve substantial benefit. The study also showed the risks of prolonged sitting (> 16 hours per day), which was a risk that was independent of recreational physical activity pattern.

Wagner A (2002) Circulation

The study examined physical activity and coronary event incidence in Ireland and France as part of the PRIME study. This was a cohort study with 9758 men aged 50–59 years with an average of a 5-year follow up reported in this paper.

Physical activity measures: the study used the MOSPA Questionnaire, which estimates leisure time physical activity and energy expenditure. There were specific questions about high intensity activities and specific questions about walking or cycling to work.

Outcome Factor: Angina or fatal or non-fatal coronary heart disease.

Results: Physical activity was associated with a decreased risk of coronary heart disease incidence, across increasing tertiles of physical activity, and showing a 34% decrease in risk of coronary heart disease in the most active third of the population (relative risks: 1, 0.73, 0.66). The results were non significant for comparing high intensity activities only against none, and were also non significant for the relationship between walking or biking to work and incident coronary heart disease. The relationship persisted after adjustment for other potential confounders. The summary observation was that there appeared to be approximately an 8% decrease in risk for each increment of 10 MET-hours per week. This study further adds to the evidence base for increments of moderate physical activity, and provides further support that the currently recommended physical activity thresholds provide cardiovascular disease protection.

Davey-Smith (2000)

This study examined cause specific mortality in the Whitehall study, which was a cohort examining British civil servants.

Physical activity: measured by a questionnaire, comprised of sports participation questions and then comparative questions, which asks responders to rate themselves in their physical activity behaviours compared to others of the same age and sex? Three categories were developed: active, moderately active, and inactive. The outcomes were all-cause mortality and cause specific mortality.

Results: With respect to cardiovascular deaths there was a significant dose response relationship between walking pace (1, 1.4, 2.1). For overall leisure time physical activity, there was no relationship with coronary heart disease (RRs across tertiles: 1, 0.97, 1.13) although it was significant for all-cause mortality, with a 40% increase in risk for the inactive (RR by tertiles: 1, 1.1, 1.4) and for 'other' types of cardiovascular diseases. This study was confined to men without disease at entry, and there was a significant relationship between physical activity and coronary heart disease and all-cause mortality among these males.

Lee (2001a) JAMA

This study looked at physical activity and coronary heart disease in women as part of the Women's Health Study, which was a randomised control trial. This was a cohort analysis nested within that trial, where 39372 women were followed up for five years. The cohort was comprised of female health professionals.

Physical activity measure: Average time on recreational activities each week, walking and walking pace, and flights of stairs climbed daily. These were used to develop an MET score, which is an estimate of energy expenditure.

Outcomes: Diagnosed or incident cardiovascular disease or death.

Results: The study showed a dose response relationship between increasing energy expenditure with an apparent maximum benefit at around 1000 kilocalories of energy expenditure per week. Vigorous recreational activities were not significant on their own. Walking was significant, but the total time of at least one hour a week of recreational walking was more important than pace. The relationships were similar when stratified by sub-group, particularly for overweight and normal weight women. This study further supports the moderate intensity recommendation. Achievable amounts of walking may confer independent health benefits to middle-aged women, and suggest that walking can be recommended for this age group.

Yu (Heart, 2003), Caerphilly Study

This was a cohort of well men from the Welsh community of Caerphilly in the 1970s. A disease free cohort was assembled in the mid 1980s and an average of 10.5 years of follow up on a sample size of 1975 men is reported in this study.

Physical activity measures: these were self report measures based on METs, and were defined as light activities –2 to 4 METs, moderate activity –4 to 5.5 METs, and heavy activities >= 6 METs; in addition, occupational physical activity questions were asked.

Outcome Factor: all-cause mortality, cardiovascular and coronary heart disease deaths.

Results: Total physical activity (divided into tertiles) demonstrated a greater relationship with all-cause mortality and cardiovascular deaths but was significant only for the highest tertile of physical activity, compared to the lowest tertile. The paper reported that combining light and moderate physical activity showed a non-significant relationship, but that vigorous heavy physical activity showed a significant inverse relationship with mortality. Occupational physical activity showed no relationship.

Implications: This paper supports vigorous physical activity as a significant influence on reducing all-cause and cardiovascular mortality risk, but does not support a health benefit for less vigorous activities. A methodological weakness is that light and moderate physical activities were combined together into the 'less vigorous' group, so that conclusions about the 'moderate intensity activity alone' are not possible. Thus the findings really indicate that 'moderate and light' activity combined confers no benefit, compared to the most sedentary group. Occupational physical activity shows no relationship with outcomes. This study is widely cited as providing evidence that moderate activity does not confer a health gain, but only vigorous activity does, so the methods of reporting activity levels make this difficult to substantiate.

1.2.3 Studies of Physical Activity and Cardiovascular Outcomes among People with Diabetes

Hu FB (Annals of Internal Medicine 2001)

This study examined physical activity and the risk of cardiovascular events among diabetic women. The study was based on the Nurses' Health Study Cohort, of whom 5125 had diabetes; these women were followed up for 14 years. Physical activity was measured in hours per week of total physical activity, and also specific activities in hours per week, with flights of stairs and walking measured in terms of usual walking pace. The outcome was cardiovascular events or cardiovascular deaths. The results showed that total cardiovascular events decreased significantly in the middle of the distribution of total physical activity, approximating 4 hours per week. The associations were very similar when stratified by body mass index, or by insulin use or drug treatments for diabetes. The total physical

activity and cardiovascular disease relationship, based on physical activity quartiles, showed a dose response relationship (relative risks 1.0, 0.87, 0.76, 0.69) and walking showed a very similar relationship, with walking quartiles associated with a reduced risk of cardiovascular disease (relative risks 1.0, 0.85, 0.63, 0.56).

Another study examined the relationship between physical activity and both cardiovascular disease and total mortality in men with diabetes (Tanasescu 2003). This study used data from the male health professional cohort, which was already a moderately active group, compared to the general population.[6] The sample of 3058 with diabetes was followed up for six years. Physical activity measure was a leisure time estimate in average time per week spent in specific activities and questions were also asked about heavy outdoor work, weight lifting and walking pace. The outcomes were cardiovascular endpoints, both fatal and non-fatal cardiovascular disease, coronary heart disease and stroke. There are dose response relationships observed in quintiles of physical activity with cardiovascular disease endpoints (relative risks 1.0, 0.91. 0.68, 0.76, 0.72) and for all cause mortality (1.0, 0.88, 0.64, 0.64, 0.65) and even for the relationship between walking and all cause mortality (1, 0.99, 0.96, 1.08, 0.60). For walking, only the highest quintile was significantly related to a reduced risk of all cause mortality. The quantum of walking in this highest quintile was around 4 to 5 hours of walking per week. There was also an association with the pace of walking, such that those walking more briskly showed a stronger association.

1.2.4 Physical Activity and Cardiovascular Disease: Recent Reviews and other Summary or Methods Papers

Wannamethee (2001a) Sports Medicine

There have been several review papers in recent years. Wannamethee (2001a) examined studies of physical activity in the prevention of coronary heart disease. For primary prevention, current guidelines produced by CDC and the US Surgeon General are supported by recent findings. This appeared true for men and women in middle aged and older adults. For tertiary prevention, which is rehabilitation or post heart attack, physical activity may be effective, but there are too few exercise-only studies to make definitive statements here. In another review (Erlichmann 2002) also concluded that the relationship between physical activity and cardiovascular disease was strong from an epidemiological perspective.

The views of Paul Williams (2001; 2003)

Paul Williams from California has been a published opponent of the moderate 'self reported physical activity' message for two decades. He has written two recent papers, which further contribute to this debate. Williams (2001) carried out a meta analysis comparing 'fitness measures' versus 'reported physical activity'. He reviewed different studies, which had looked at physical activity and coronary heart disease as well as those that had examined fitness and subsequent coronary heart disease. He suggested there was a stronger relationship between fitness and heart disease than between self reported physical activity and heart disease. This paper suggests that the 'benefits of increased fitness in those who are unfit may be greater than the benefits of increasing physical activity in those who are sedentary, and that overall the benefits of fitness appear to be greater than those attributable to self reported activity' (Williams 2001).

A further methodological paper Williams (2003) provided a somewhat contradictory set of concerns. The paper entitled, *The illusion of increased fitness and decreased mortality*, raised some methodological concerns about measurement error in the assessment of both physical activity and fitness. In particular, this paper considers that substantial measurement error exists, even for objective measures of cardio-respiratory fitness. The paper assumes that the changes that one might see in fitness could be due to an artifact analogous to regression to the mean. This challenges whether the underlying assumption of changes of fitness could lead to changes in all cause mortality but does not question the evidence that baseline fitness is associated with reduced mortality risk. Williams

[6] Note this selection bias skews the population at risk towards being active – hence it is more difficult to discern associations with PA in such data .

fundamentally challenges the question that 'changes in fitness' can lead to changes in mortality, and therefore challenges the public health assumption of 'activating the population'. Methodologically, this concept of measurement error may be more applicable to self-report physical activity measures than for measures of cardio respiratory fitness and it seems that Williams has assumed high levels of measurement error to fitness.

This paper does not make sense in the light of the findings that very diverse measures of fitness or other objective measures of physical activity, or other subjective and self reported measures of physical activity, all show remarkably consistent relationships to cardiovascular disease and all- cause mortality. It is implausible that measurement error could have influenced all of these studies systematically such that all studies are showing a spurious relationship.

This paper takes an extreme position in challenging the public health assumptions around physical activity. It is not the view held by cardiovascular epidemiologists who are more convinced of the consistency of the evidence across many studies. Nonetheless it does deserve mention, as the concept of measurement error modeling should be conceptually developed in future cohort studies.

Biological Plausibility update

One recent study updates some of the key biological evidence for explaining the metabolic and biological mechanisms for the relationship between physical activity and cardiovascular disease protection. It is surmised that physical activity increases or improves endothelial cell function in human endocardial tissue. Hambrecht (2003) conducted a randomised control trial of around 17 people per arm, using a vigorous exercise training program, and showed that intensive exercise impacted upon cardiac endothelial vascular permeability. This starts to clarify some of the biological mechanisms that might underpin the cardiovascular protection conferred by physical activity.

1.2.5 Physical Activity and Hypertension

Physical activity and blood pressure have been reviewed in several studies. Fagard (2001) examined the relationship between physical activity programs and blood pressure, and suggested that for systolic blood pressure a reduction of around 3.4mm of mercury was typical (2.3–4.5), and a reduction of around 2.4mm for diastolic blood pressure (1.6–3.2). Two meta analyses have been conducted by Kelley (2000; 2001). The first examined progressive resistance exercises on rest in blood pressure, and showed a small effect on reducing systolic and diastolic blood pressures. The second examined the relationship between walking and blood pressure, and showed around a 2% reduction for systolic and diastolic blood pressure following walking programs.

1.2.6 Physical Activity and Obesity Prevention

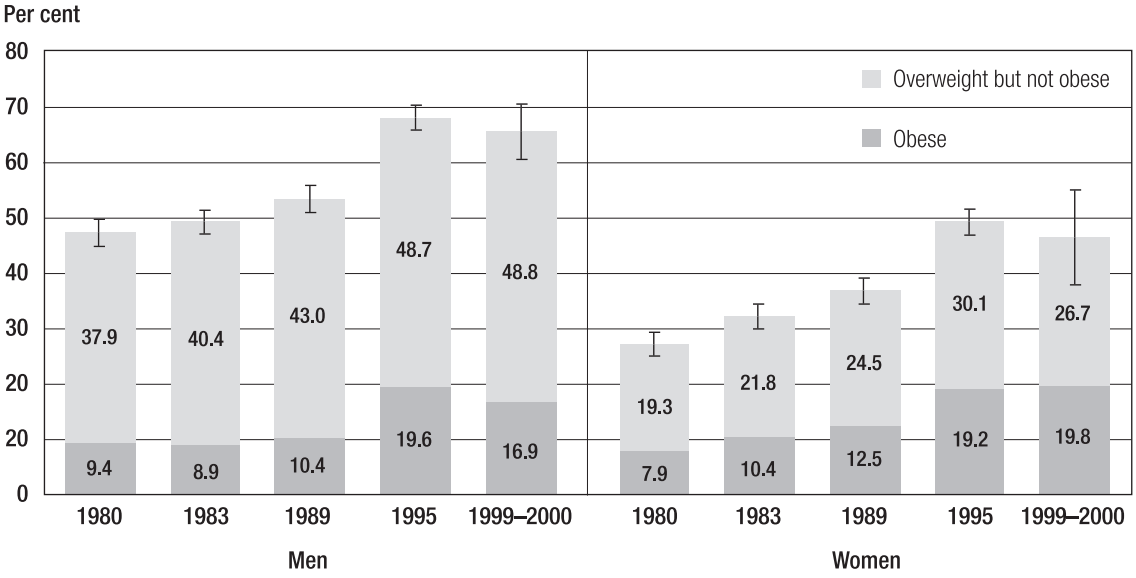
Increasing trends in obesity have occurred globally, especially in developed countries over the past two decades (AIHW 2003; Prentice and Jebb 1995). Trend data from Australian population surveys since 1980 have been compared in a recent AIHW publication (2003: A growing problem – trends in the pattern of obesity and overweight 1980 to 2001). Data from that publication is shown in Figure 1.1.

Recently, several efforts have been made to quantify the role of physical activity in the genesis of the obesity epidemic (Welk and Blaire 2000).

Several authors have reviewed different dietary surveys or population total nutrient intake levels and concluded that there have been significant increases in mean energy intake (EI), particularly from carbohydrates (Blair and Nichaman 2002). Although no data have monitored Energy Expenditure (EE) in a comprehensive fashion, it is suggested that EE has declined. Although leisure time physical activity has remained mostly unchanged or only declined slightly in the past two decades, other modes of EE are thought to have declined more substantially. The reasons for this include technological advances that require less EE in the domestic and occupational settings, and greater use of motorised (and therefore sedentary) modes of transport (Blair and Nichaman 2002). Even small consistent declines in EE, and increases in EI, averaged over a year, could result in population weight gain.

Figure 1.1 Data from AIHW 2003 showing trends in obesity and overweight, men and women 1980 to 2001

Prevalence of overweight and obesity by BMI: measured height and weight, Australian men and women aged 25–64 years, 1980 to 1999–2000



The current debates rage around the amount of physical activity which might be required to (i) prevent weight gain in populations, and (ii) induce and maintain weight loss in populations already obese or overweight (Erlichman 2002). There are no clear answers to these questions, so the results of separate consensus processes are described. The International Association for the Study of Obesity consensus group reported on the deliberations of a meeting held in 2002 (Saris et al. 2003 Obesity Reviews). This review concluded that there were many health benefits to be gained from the current 30 minutes moderate intensity physical activity recommendations, in the areas of hypertension management, diabetes prevention and reducing cardiovascular disease risks. However, '*for the prevention of weight regain in formerly obese individuals, at least 60–90 minutes of moderate intensity physical activity or lesser amounts of vigorous physical activity are required*'. This is slightly more than the amount recommended to prevent the transition to overweight or obesity in the general population, where '*moderate- intensity activity of at least 45–60 minutes per day, or 1.7 PAL is required*' (Saris 2003). The latter measure, PAL is an estimate of total daily average physical activity level, where a PAL of 1.0 is basal resting metabolic rate; hence, averaging across the day to accrue a PAL score of 1.7 would require the amount of activity above.[7] Others have suggested a PAL of 1.75 to 1.8 (Erlichman 2002), particularly for males, which would be required for weight stability in the population. This is around 2000 Kcal/week of EE, which is around twice the current recommendations for cardiovascular disease and diabetes related health. Overall, this PAL level could be achieved by moderate physical activity, or by shorter quanta of more vigorous activity. The key idea is energy balance, and the total amount of physical activity across the whole day is what appears necessary for population level obesity prevention.[8] The only conceptual approach that is likely to succeed in increasing the total EE for human populations is related to policy, regulatory and environmental changes, to re-engineer physical activity into everyday life (Erlichman 2002).

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7 Note that this total activity, of at least 60–90 minutes, is much closer to the 'recommended' 10,000 steps suggested by pedometer readings as health enhancing

8 Note that estimating the contribution of PA to weight loss in small clinical studies and settings is beyond the scope of this paper – a population health focus has been maintained in this paper

1.3 Physical Activity and Diabetes Prevention

The prevention of diabetes in populations is an important public health concept, given its increase research in the 1980s and 1990s explored the relationship between physical activity and diabetes. Initial studies were cross sectional, showing high rates of diabetes in sedentary population, especially of indigenous and Pacific Island populations (King, Taylor and Zimmet 1984). Most of the subsequent evidence comes from population-based observational cohort studies. These studies demonstrated that decreased physical activity is as important a risk factor for incident diabetes as is increased body mass index (Manson 1992 – see *Getting Australia Active* 2002). This suggested an important potential role for physical activity in diabetes prevention. In the last few years, even stronger evidence has become available from randomised controlled trials, which have explored the concept of diabetes prevention. There is also increase in studies of high-risk populations, particularly those with impaired glucose tolerance. This review explores these recent randomised controlled trials – and their impact on diabetes prevention.

Da Quing study (Pan, 1997)

This study was conducted in China, and identified people with impaired glucose tolerance in a population sample. The study was a randomised controlled trial, with 577 people enrolled. Randomisation was by outpatient clinics, and patients were allocated to 4 intervention arms. These were an exercise group, exercise and diet, diet alone, and a control group; the outcome factors included behavioural and health outcomes. The behavioural outcome was a significant reduction in body mass index (for those who had a BMI > 25). The health outcome was a lower incidence of Type 2 diabetes in the intervention arms compared to controls. Around 44% of the intervention arm subjects developed diabetes compared to 68% in the controls. This provided initial evidence that secondary prevention[9] trials could reduce diabetes incidence.

[9] In these high risk IGT populations

Tuomilheto (2001) New England Journal of Medicine

The Finnish Diabetes Prevention Study was a randomised controlled trial with the explicit objective of preventing diabetes. Five outpatient clinics enrolled 522 high-risk individuals identified through impaired glucose tolerance (IGT) screening. The intervention included intensive nutritional counselling and some endurance exercise advice. The aims were to reduce weight by about 5%, to reduce total fat intake to around 30% or less of total energy intake, and to achieve the moderate physical activity recommendations of 30 minutes per day. Control subjects received general healthy lifestyle advice. The outcomes showed a weight loss of around 4.2 kg in the intervention group compared to 0.8 kg in the controls as measured at 12 months. There was also an increase in physical activity in the intervention group compared to controls. The health outcomes showed a 58% greater risk reduction in the intervention group compared to controls in terms of developing a new case of diabetes. The number needed to treat was 22, which means that for every 22 people with impaired glucose tolerance who received the intervention, one more case of diabetes might be prevented by this intervention compared to controls. This trial added to the evidence base that diabetes could be prevented in high-risk populations.

Diabetes Prevention Trial (DPP group NEJM 2002)

This multi center randomised controlled trial in the United States was the largest diabetes prevention project to date, with a very extensive behavioural intervention. The study was a randomised controlled trial, with 3234 adults with impaired glucose tolerance (IGT) enrolled in the study. There were three arms to the intervention, the first being an intensive lifestyle intervention. This was comprised of a detailed 16-session program focusing on decreasing total fat intake, a target of 7% weight loss and increasing physical activity to the national recommended levels. The other two arms of the trial were a usual care arm, and a pharmacological arm, where patients received Metformin. The behavioural outcomes showed that 74% achieved their physical activity goal at one year, and also achieved their weight loss goal of around 7% (which was around

7 kg). The health outcomes showed a 58% reduction in the incidence of diabetes in the intensive lifestyle intervention compared to controls, and this compared to a 31% reduction in diabetes incidence in the Metformin group. The study was stopped early given the strength of the evidence, for both Metformin and the intensive lifestyle program, but clearly the behavioural intervention was substantially more effective in preventing diabetes than the Metformin group.

The implications of this study are substantial; combined with the earlier Finnish and Chinese studies, there is now evidence that diabetes can be prevented in those at high risk. One caveat is that these interventions are very expensive and intensive, and require substantial resources. The DPP trial cost around $3,000 per participant in the intensive lifestyle intervention. The represents a substantial cost and a detailed program may be difficult for whole populations to participate in and adhere to in the long term. Thus although the evidence is now strong, there do not appear to be population health versions of this level of detailed intervention which are feasible at this stage.

Other prevention trials have looked at other pharmacological agents in the prevention of diabetes. In addition weight loss medication such as Xenical has also been used in diabetes prevention. These interventions are exploring other potential opportunities for diabetes prevention, and their results are not yet reported.

1.3.2 Other recent physical activity, inactivity and diabetes related studies

Hu FB (2001) Archives of Internal Medicine

This study examined the association between physical activity and television watching and the incidence of diabetes. The study was a cohort of 37,918 health professional males who are free of diabetes and who were followed up for 10 years. Physical activity was measured by weekly time on specific activities and included an estimate of usual walking pace. A summary estimated energy expenditure total was calculated in MET-hours. This measure was shown to be reliable and valid. The outcome was incident diabetes with corroborating objective clinical findings. The results showed that physical activity in quintiles was associated with a reduced risk of developing diabetes (RRs: 1.0, 0.88, 0.75, 0.69, 0.57). Similar associations were shown for walking, even after adjustment for vigorous physical activity levels. There was a trend towards decreased risk with increasing walking pace. There was also an independent association between television hours watched and incident diabetes, with 2–3 fold increase in risk of diabetes in those that watched more than 40 hours per week of television compared with those that watched less than 1 hour. This was independent of the protective influence of physical activity.

Fulton-Kehoe D (2001) Epidemiology

This was a case control study, with 167 cases of diabetes and 1100 matched controls of Hispanic and non-Hispanics in Colorado. There was an approximate 40% decrease in the odds ratio of being diabetic in the most active third of the population, and there was also a significant decrease in risk for those who reported high occupational activity compared to those who were less active at work. There was some interaction with body mass index, suggesting that some of the role of physical activity might be mediated through influences on body rate.

1.4 Physical Activity and Stroke – Recent Studies

There is accumulating evidence that physical activity may protect against stroke, but this is still less clear than for coronary heart disease (Wannamethee 2001). The dose response relationship to stroke prevention is less clear and the level of activity required is not as well documented. Furthermore the benefits for women in stroke prevention are not yet substantiated. Overall, there are few new epidemiological studies published since 2000 to add to the evidence base. These new studies are described below:

Lee and Blair (2002) MSSE

This study reported on cohort data from the Aerobic Centre Longitudinal Study in Dallas, with ten years of follow up of this cohort of middle aged males.

Study factor: Cardio respiratory fitness.

Outcome Factor: mortality from stroke.

The results showed that the middle and upper tertile of cardio respiratory fitness demonstrated a two-thirds reduction in the risk of stroke death, compared to the lowest tertile of fitness. This study provides some evidence on the prevention of stroke through fitness, but is limited by being a middle aged male cohort, and only having 32 stroke deaths in this study. Finally this study demonstrates reductions in stroke mortality, but did not assess stroke incidence.

Ivey (2003) MSSE

This study described some of the potential benefits of an acute bout of exercise in patients who had already had a stroke. The outcomes are haemostatic variables, which may be intervening causal variables in stroke risk. This is a tertiary prevention trial that demonstrated that a single exercise session could increase levels of physical activity, which improves fibrinolysis profiles, and therefore may modify clot lysing potential. This may contribute to reducing subsequent atherothrombotic risk, and therefore provide a mechanism for the beneficial effects of physical activity.

1.5 Physical Activity and Mental Health

There are few new studies to add to the evidence base published since 2000 in the area of physical activity and mental health. There are several review papers written in the past five years, which provide slightly different perspectives on the evidence for physical activity and mental health. Much evidence is required to further confirm or refute the popularly held views that physical activity is of benefit to mental health. Some excellent trials are in progress (Dunn 2003), but final results have not been reported.

Further clarification is also required with respect to different mental health outcomes. For example, clinical studies have explored physical activity and anxiety or depression in small samples, but few have used representative or large population samples. Furthermore, even less work has been carried out to explore the relationship between physical activity and psychosocial well being, or positive mental health, other than in cross sectional analytic surveys where association seem to be consistently affirmed. These areas remain to be tested further, using better research designs, before the evidence base is as conclusive as other areas of health benefit attributable to increasing physical activity in populations.

Dunn (2001) MSSE

This review paper explored the dose response relationships between physical activity and mental health. This paper further documented the need for clarification of health outcomes, in terms of the range of health outcomes possibly related to physical activity. In addition, standardised assessment of outcomes such as depression or generalised anxiety disorders remains as a research challenge, as current practice measures these phenomena in different ways. Dunn reviewed earlier papers, which were generally cross sectional analytic studies, and tended to show associations between physical activity and exercise and symptoms of depression. Cohort studies have shown mixed relationships, with some studies showing a decreased risk of depression in those who are physically active and other studies showing no clear associations. Thus the evidence is mixed, even in the better designed longitudinal research studies.

Lawlor (2001) BMJ

This study conducted a systematic review of 14 studies, which explored exercise as a therapy for the management of depression. Most of these were small clinical trials. Exercise, compared to no intervention, seems to have a significant effect across these studies, but there were some important methodological concerns and limitations. One of the issues was the dose or type of physical activity required is not known. Few of these clinical trials used intention to treat methods, which should be standard practice in randomised trial research. Most were unblended trials, suggesting the possibility of some social desirability bias. Lawlor (2001) commented 'overall effects cannot be determined because of a lack of quality research in these clinical populations with adequate follow up'. The research needs in this area include better prospective observational studies examining the dose response

relationship, and randomised controlled trials to identify the dose of physical activity (type of frequency and intensity and duration) required for mental health benefit. Mechanisms of this relationship are not well understood.

Fox (1999) Public Health Nutrition

This review of physical activity and mental wellbeing reported that 'there are hundreds of studies and more than 30 narrative reviews or meta analyses but that in spite of all this research the evidence base is still relatively modest'. There is quite limited evidence on physical activity and mental wellbeing in whole populations, as many of the studies were conducted amongst special groups and with very small sample sizes. Research is needed in three areas, the first being the primary prevention role, whether physical activity might prevent mental health problems. There is very limited evidence here. There is also limited evidence on whether physical activity leads to an improvement in wellbeing in the general community. There is some evidence that physical activity might improve mental health problems in the small samples studied with problems such as anxiety or depression. The review concluded that the effect sizes in experimental studies appear to suggest that aerobic activity may be equivalent to resistance physical activity in reducing the incidence of clinical depression, and that these may be more useful than moderate physical activity. He concluded further that physical activity was similar in its effect size as psychotherapy interventions for depression. There also appeared to be a moderate effect on anxiety, but this could be an acute response with anxiety being reduced immediately post exercise. Research on psychosocial wellbeing is much less clear, with consistent associations from cross sectional studies, but little longitudinal research. The measurement of wellbeing is somewhat mixed, with it being conceptualised differently as 'self esteem', cognitive function, sleep quality, and more generalised mental health states.

Thus the issue of physical activity and different aspects of mental health require substantially more research, and the widely held attributed benefits of being active cannot be substantiated at this stage. The research to date is suggestive, but definitive policy decisions in this area would require a stronger evidence base.

1.6 Physical Activity and Cancer

Physical activity and cancer is a relatively new area of epidemiological research. A review of cancer prevention in 1988 carried out by Armstrong (1988) identified major preventable causes of cancer, which merited public health investment; physical activity was not mentioned as a primary prevention risk factor for any of the major cancers. Research regarding the relationship between physical activity and cancer has proliferated in the past 15 years.

There is increasing evidence of physical activity contributing to reducing the risk of all-cause cancers. Lee and Blair (2002a) examined a cohort of Dallas males and observed that cardio-respiratory fitness[10] was associated with a reduced incidence of all cancers, as well as smoking and non-smoking related cancers. Another male cohort, derived from UK communities, was followed by Wannamethee and Shaper (2001a), who noted that only moderately-vigorous activity (rather than moderate intensity alone) was associated with all cancer mortality. Finally, a review by Thune (2001) noted that there was an overall risk reduction relationship between activity and all cancer deaths, with a dose response relationship, but that this was strongest for colon cancer and breast cancer, which are important contributors to all cancer deaths.

A systematic review of physical activity and cancer was undertaken in 2002–2003 for the NSW Cancer Council. This section provides a brief summary of that report.[11] A total of 106 primary prevention studies (physical activity and incident cancer) published between 1990 and 2002 were appraised. Seven cancer types were assessed. There was good to very good evidence of a protective effect

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10 This is the only study to examine fitness, an objective measure, rather than self reported physical activity in cancer epidemiological studies

11 Bauman A, Habibullah M, Holford R. (2003). A Review of Published Epidemiological Studies 1990–2002, which examined the relationship between physical activity and cancer. (Report for the NSW Cancer Council August 2003). Prepared by the NSW Centre for Physical Activity and Health.

of physical activity upon the risk of colon cancer. Only 18 studies were included in the review, but more than 20 preceded the 1990 review start date, and more than three quarters observed a clear association (Colditz 1997). Colon cancer is the area where the physical activity evidence is strongest in terms of cancer prevention. This has been reaffirmed in recent reviews, but the biological mechanisms underpinning this protective effect remain unclear.

There is moderately-good evidence regarding the protective effects of physical activity upon the risk of developing breast cancer. However, in this area questions remain in terms of identifying which groups of women, at which ages (pre/post menopausal) require how much activity for a protective effect. Several studies have been published in the past 18 months, but these do not add substantially to the evidence debate; some find protective associations with breast cancer, and some do not observe such associations. For example, the most recent studies (published in 2003) still show mixed effects and confusing use of 'positively-oriented' language. One case-control study of American women aged 35–79 (John 2003) reported 'a protective effect' of lifelong physical activity on breast cancer – this effect was a 26% reduction on the odds of developing breast cancer, but the data in the paper provide confidence intervals which indicate this level of risk reduction was not significant (95% CI 0.52–1.05).

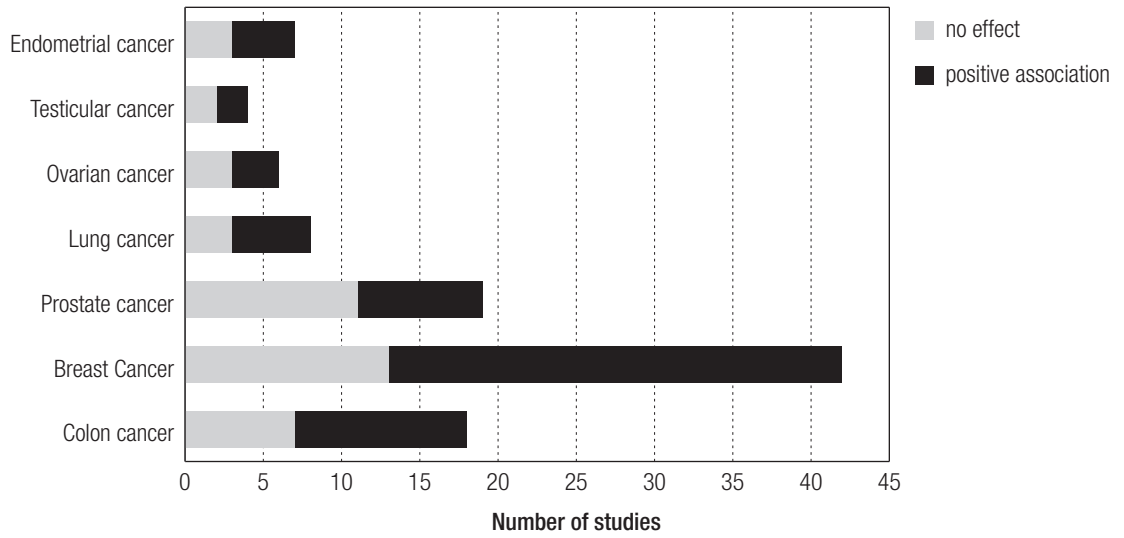
Another study, following a cohort of American women (Patel et al. 2003), also reported a '29% lower incidence of breast cancer among women who were most physically active', but again this 'positive' language contrasts with the non significant association reported (Odds Ratio 0.71, 95% CI 0.49–1.02; there was a suggestive trend, but the actual findings are not significant). Another study, the Nurses' Health cohort, did not show any relationships at all between levels of physical activity and breast cancer (Colditz 2003). Other studies found protective relationships for post-menopausal women and not for premenopausal women, and for more vigorous or strenuous activity, rather than for moderate intensity physical activity (McTiernan 2003; Steindorf 2003).

Evidence of associations between physical activity and the other cancer sites – lung, prostate, testicular, endometrial and ovarian cancer risk – were not conclusive. The findings in the review prepared for the NSW Cancer Council are shown in Figure 1.2. A positive relationship indicates the studies that showed that being active reduces the risk of the specific type of cancer.

1.6.1 Conclusions about physical activity and cancer in population studies 2003

Recent consensus statements by the International Agency for Research into Cancer (IARC 2001) have

Figure 1.2 Review of 1990 2002 studies of physical activity: number of positive studies indicating a protective effect of being active, by cancer type (CPAH 2003)



summarised the evidence. For example, the IARC report concluded that:

> *'the working group concluded that there was sufficient evidence for the role of physical activity in preventing colon and breast cancers and limited (protective) effect for cancers of the prostate and endometrium… Some of these effects appeared to be independent of weight (control)… Taken together, the working group considered that excess body weight and physical inactivity account for approximately a quarter to one third of cancers of the colon, breast… Thus adiposity and inactivity appear to be the most important avoidable causes of these cancers…' (Vainio et al. 2002).*

The American Cancer Society findings were described by Willett (2002):

> *'…that, after avoiding tobacco, staying lean and active provides the greatest potential for minimising cancer risks'.*

The most recent review by Lee (Nov 2003) reviewed the epidemiological data, and concluded that:

> *'there was a 30–40% risk reduction for colon cancer, and the evidence for breast cancer was also moderately strong, with a 20–30% risk reduction, and dose-response relationship for both colon and breast cancers… but the evidence for prostate (and other) cancers was weaker or inconsistent…'*

Implications of these conclusions are that physical activity has a defined role in the primary prevention of colon and probably breast cancers. Considerations of the population health burden of these two cancers should consider physical inactivity as an independent risk factor. Finally, evidence around tertiary prevention studies is now growing, with exercise programs demonstrating quality of life and psychosocial benefits for those with established cancer (Courneya 2001). This is extending the range of cancer-related physical activity research and evidence generation.

1.7 Physical Activity and Musculoskeletal Health

Physical activity is thought to have benefits for musculoskeletal health. This includes potential roles in the prevention of osteoporosis, and in reducing risks or consequences of arthritis. No major or new breakthrough papers or reviews have been published since the previous review of the evidence described in *Getting Australia Active* (Baumann et al. 2002).

It is well recognised that bone mineralisation peaks by the end of the second decade, and that gradual bone loss thereafter contributes to osteoporosis and the risk of falls and fractures (Vuori 2001). Therefore, one prevention focus should be to encourage vigorous weight bearing physical activity among children and adolescents, during which period lifelong bone deposition occurs (Vuori 2001). The benefits of being active extend beyond bone mineralisation. Partly through other modalities (muscle strengthening and balance), resistance training is encouraged and forms part of general physical activity recommendations among middle-aged and older adults (Vuori 2001). Physical activity may prevent functional decline seen throughout later ages (Bauman 2003 in Morris (ed), in press).

The evidence on physical activity and arthritis has not progressed in the period reviewed. There is some support for possible benefits of moderate intensity physical activity, and it is unlikely to do harm; on the other hand, vigorous or prolonged activity may exacerbate or worsen the severity of knee and other large joint osteoarthritis, and be associated with higher injury rates. Increasing evidence suggests that older patients who have osteoarthritis may benefit from physical activity and exercise programs in terms of improved functional status and independent living (Minor 1989; ACSM 1998).

A few epidemiological studies have examined aspects of musculoskeletal health and all cause mortality or other outcomes. Katzmarzyk and Craig (2002) examined the Canadian Fitness Survey cohort (n=8116 followed since 1981), and showed that aspects of musculoskeletal fitness (sit ups, grip strength) were associated with all cause mortality. Lowered grip strength was also associated with functional limitations among older adults (Rantanen 1999).

Finally, the net sum of evidence on falls-prevention remains promising; although the relative contributions of different types of activity (including

strength training, balance and gait training) remain uncertain. Review papers have shown inactivity to be a consistent risk factor for hip fractures (Gillespie 2002). Another systematic review has shown that moving from being sedentary to at least moderately active can reduce the risk of hip fractures by 20–40% (Gregg 2000). These studies provide ongoing support to the evidence base that physical activity, including strength training in the elderly, should remain central public health recommendations.

1.8 Conclusions

This update of the epidemiological evidence reaffirms the evidence underpinning the National Physical Activity Guidelines for Australia: moderate intensity physical activity, on most days of the week, for about half an hour provides the maximal population health benefit. Recent studies reported here have suggested that walking, especially that of at least 3.2–4.8 km per hour itself confers a benefit, which is independent of other modes of physical activity. Active commuting is supported by a few studies (Andersen 2000), but evidence in this area remains sparse. The benefits of being active accrue to different population sub-groups; evidence is now clear for women as well as men, and is clear for people with diabetes or those who are overweight. Thus, it is an important public health strategy to encourage activity among the overweight or among many diabetics, irrespective of the potential for physical activity to impact weight loss directly.

One confusing area remains in the quantum of activity for weight loss and weight maintenance. Each of these areas have different consensus statements, but both recommend more than the 30 minutes per day; increasing energy expenditure across daily living to at least 45–60 minutes is a minimum for obesity prevention.

The most exciting new information has been in the area of diabetes prevention. Several controlled trials have demonstrated that lifestyle change can reduce the incidence of diabetes in at-risk populations. The challenge here will be to translate this research and develop interventions that can be disseminated in whole populations and population groups at risk of developing diabetes.

The evidence for mental health and for musculoskeletal health has not changed much in the period under review. Further research in both of these health outcome areas is required to clarify the existence and magnitude of physical activity related health benefits. For cancer prevention, evidence is strong for colon cancer, moderate for breast cancer prevention, and uncertain for other cancers. Current work around tertiary prevention will be a strong focus in the coming decade.

Finally, a review of the population burden of disease attributable to inactivity is in progress, and will redefine the global burden of illness and disease attributable to physical inactivity.

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Section 2

Update on the Effectiveness of Interventions to Increase Physical Activity – What Works?

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SECTION 2

UPDATE ON THE EFFECTIVENESS OF INTERVENTIONS TO INCREASE PHYSICAL ACTIVITY – WHAT WORKS?

The aim of this chapter is to update the evidence presented in *Getting Australia Active* (Bauman et al 2002), especially as it relates to intervention studies which shed some light on potentially effective intervention strategies for improving population levels of physical activity. This summary review is based on individual reviews of recently published work, conducted by 17 independent researchers with expertise in the promotion of physical activity in a variety of settings.[12] Their individual reviews are included in the Appendices. In cases where there is a dearth of intervention work, or for which results of intervention studies are not available, the reviewers have drawn on observational studies to inform future directions for interventions.

Methods

Each reviewer conducted a comprehensive search of the research literature using on-line data bases such as MEDLINE, PUBMED, PSYCHINFO and SPORTDISCUS. The searches focused mainly on primary research articles on physical activity interventions that have been published since 1999, using a range of key-words specific to the population group or setting. In some cases, reference lists of retrieved articles were also searched for additional publications. Searches were limited to include only articles in English. For the section on physical activity and chronic disease, searches were made of the Cochrane database and of specific 'review' journals.

[12] Kylie Ball, Wendy Brown, Liz Cyarto, David Dunstan, Billie Giles–Corti, Andrea Lange, Gavin McCormack, Gary Moorhead, Alison Marshall, Yvette Miller, Neville Owen, Terri Pikora, Jo Salmon, Tya Shannon–Smith, Trevor Shilton, Ben Smith and Anna Timperio.

The focus of each review was on interventions to increase physical activity behaviours. A summary of the evidence is described here in the following categories:

- People (children and adolescents, young adults, older people and indigenous populations)
- Organisations (schools, primary health care and workplaces)
- Mediated approaches (mass media, print materials, telephone, and internet). This section includes some community-wide interventions.
- Environments (transport, physical environments)
- Physical activity for the control of chronic health problems (obesity, diabetes, and progressive resistance training)

2.1 People

Children and adolescents (in 'out-of-school' settings)

The chapters in Part 3 of Getting Australia Active explored the (then) current thinking about the effectiveness of interventions to promote physical activity in three specific 'life stage' population groups (childhood and adolescence, young and older adulthood) as well as in other specific population groups such as people with disabilities, people from non–English speaking backgrounds and Indigenous Australians. Most of the evidence was based on observational studies, and the chapter concluded with a call for better-designed research to evaluate promotion strategies in most of these groups.

In her review of recently published literature, Anna Timperio found nine intervention studies with children (up to 12 years) and five with adolescents (13–18 years) (see Appendix 1A). Most were conducted in the United States, either as after school, summer camp or family-based interventions. In general, sample sizes were small, and results were mixed. The most effective studies were a comprehensive school and family program in Greece (Manios et al. 2002), and a US mother and daughter program (Ransdell et al. 2003). The Greek intervention involved both school-based education and parental meetings, with a high level of intervention maintained over the six year program.

Although two of the studies reviewed reported reduced time spent watching TV, links between physical activity and TV time were not reported, and need to be clarified. Overall, five of the 14 studies reviewed show promise for behaviour change in this area, and provide useful insights for the development of Australian studies (of which none are published to date).

Young adults

Kylie Ball's review of the recent 'young adult' literature found only three intervention studies with young adults (18–30 years) and one Australian study of mothers (in their 20s and early 30s) with young children (see Appendix 1B). The four studies showed mixed results, with one reporting a small short-term increase in physical activity, one reporting a change in stage of change, one reporting no change and the fourth reporting a decline in physical activity. As young adulthood is a time of transition that is associated with significant declines in physical activity, more work is still required with this population group, particularly in light of recent Australian evidence that early adult life events such as getting married and having children are times of decreasing physical activity.

Older people

In the last five years there has been much more work in the field of physical activity with older people than with younger adults, building on the earlier review by King of 29 community-based trials (King 1991), which was reviewed in *Getting Australia Active*. This focus on older people probably reflects the current government policy on healthy ageing and concerns about the health 'crises' which are likely to occur as the current generation of baby boomers ages. In his review, Gary Moorhead found thirteen intervention studies published in the last five years, most of which were randomised control trials. Seven were based in the United States, two in the United Kingdom, two in Australia and one in Belgium, with participants mostly drawn from nursing homes and retirement villages, general practice, and health and senior citizens' centres. (See Appendix 1C). Most of the interventions involved either individual advice or group settings such as gymnasia or walking groups, and it is notable that interventions with higher levels of contact, complemented by multiple reinforcements of the physical activity message were most successful.

Although these studies add considerably to our understanding of effective regimens for increasing physical activity among older people, there is still a need for research on the benefits of different types of activity (such as gardening, which may be important in maintaining functional independence in older age) and on acceptability, adherence, and longer term maintenance of participation among older people. Studies with the very old and frail elderly are also needed.

(The evidence relating to the health benefits of progressive resistance training is reviewed separately in Part 5 below).

'Special' populations

In light of the absence of population studies with people with disabilities, and of Australian studies of people from non-English speaking backgrounds, there is little information on which to base any update of the information presented in *Getting Australia Active* in these areas. Research and evaluation resources are still required for this work.

In his review of work with Aboriginal and Torres Strait Islander people (see Appendix 1D), Trevor Shilton points out that there has been an increase in the number and diversity of programs that address physical inactivity in ATSI communities, but that few have been evaluated or published in the literature. In view of the health disparities between ATSI and non-Aboriginal people, there is an urgent need for well-designed and evaluated interventions in these communities. There is some ongoing work, mainly in Queensland and Western Australia, which focuses on issues such as self-efficacy and social support, with some rural programs focusing on activities such as hunting, fishing and dancing as ways to promote activity. There is, however, a need for much more effort in this area, in relation to both measurement and interventions, in urban, as well as in rural and remote indigenous people. There is also still a clear need to work with communities to create more supportive environments and policies which will encourage physical activity.

2.2 Organisations

Schools

In *Getting Australia Active*, schools were identified as important settings for physical activity programs, as they reach the entire population aged from 5 to 17 years. Jo Salmon's review of interventions in the school setting found eight studies published since 1999, with only two of these reporting a significant increase in physical activity. (see Appendix 2A). Most of these school-based studies were not specifically targeted to increase physical activity, but included it as a strategy for prevention of weight gain. The most effective studies were the ones that included changes to the school's physical or policy environments, in addition to curriculum change. A separate review, which focused only on policy and environmental work in the schools setting found one more recently published intervention study (Sallis et al. 2003), which reported that increased support for physical activity in the form of supervision, more equipment and improved policies, resulted in increased levels of physical activity among boys, but not girls (see Appendix 4). The review of transport interventions by Terri Pikora also found two published studies of strategies to increase active transport to/from school, and one of these showed significant improvements in walking and cycling among public, but not private schools (see Appendix 4).

In Australia, it is reasonable to assume that there is a link between involvement in school-based physical education and physical activity. However, this link has not yet been clearly demonstrated, and we do not know whether increasing activity (and therefore presumably skill development) in school physical education per se results in greater participation in sport or activity outside school hours, or when children leave school. Cohort studies would be needed to explore this issue. The most promising results have come from interventions with a 'whole-school' approach, and this, together with provision of more school-community linked programs (Stone et al. 1998), is likely to facilitate continuation of participation in physical activity after leaving school. School-based interventions, which incorporate combinations of educational, policy and social support strategies, are suggested as a model for further development in Australia. The recommendations for best practice in interventions, made in the *Getting Australia Active* report are largely unchanged by recent evidence.

Primary health care

In his review of interventions in primary health care settings, Ben Smith reiterates the attraction (outlined in *Getting Australia Active*) of promoting physical activity through these services, because of their wide population reach and the perceived influence that GPs and other health care practitioners can have on health behaviours. Ten studies were reviewed in *Getting Australia Active*, and most of these found that brief interventions involving verbal advice and written materials (e.g. pamphlets booklets or 'prescription') produced only modest short term changes in physical activity. In this update of studies published since 1999, twelve single focus physical activity interventions and four multiple risk factor interventions, were identified (see Appendix 2B). Four of the physical activity interventions were conducted with older people, and one with children, so there is some overlap here with the evidence presented in Section 1. In general, the evidence confirms the effectiveness of GP-based interventions, at least in the short term, particularly when the primary focus is on physical activity.

In his review, Ben Smith notes that few interventions have been tested within the time and resource constraints of routine practice (Kerse et al. 1999; Smith et al. 2000) and this, together with the short-term duration of changes in physical activity that have been reported, needs to be taken into account when making recommendations for promoting physical activity in primary care settings. A feasible approach for GPs and other primary care practitioners to take is to undertake brief physical activity interventions to advise patients with health risk factors and other conditions that could be improved by increased participation in physical activity. These include those with hypertension, high blood cholesterol, overweight or obesity, glucose intolerance, or symptoms of anxiety or depression. Parallel to this there is a need for investigation of

the impact of partnerships involving primary care practitioners, other health care professionals and community physical activity programs in achieving more sustained increases in physical activity participation. Some studies for example, Halbert et al. 2000; Elley et al. 2003, have shown promising long-term effects from engaging exercise scientists in interventions delivered to general practice patients. However, a key consideration in these physical activity promotion models is that they draw upon resources and personnel that are likely to be available in a range of community settings.

Workplaces

Although workplace health promotion programs have considerable potential in terms of the health, productivity, and quality of life of the workforce, the evidence presented in *Getting Australia Active*, found that there was little evidence to support the reality of this potential. In her review, Alison Marshall found 32 new intervention studies published since 1998. Most involved health checks, education programs, and motivational prompts to be more active, workplace 'exercise programs' or incentive-based programs (see Appendix 2C).

Despite the fact that the workplace has the potential to provide a captive audience, the challenges of dealing with organisations to positively influence behaviour in the worksite setting remain. It would appear that a shift in focus from individual/personal behaviour change to a more comprehensive approach, including changing the organisational structure and culture of the workplace, highlighting physical activity opportunities and providing a supportive environment for physical activity, may be more successful. The 'CHEW' checklist, which was developed in Australia was identified as a useful way of identifying workplace attributes that could potentially be modified to promote physical activity, particularly in blue-collar worksites.

In her review of specific environmental impacts on workplace physical activity, Tya Shannon-Smith did not find any recently published papers, but details of one study, which was published in 1991 but not reported in *Getting Australia Active*, are reported in Appendix 2C. The results suggest that, in a 'defined' community (in this case a US naval base), simple environmental and social changes can be successful in promoting physical activity. Similarly, in her review of specific transport interventions associated with worksites, Terri Pikora found one Scottish study that promoted active commuting, with some success in promoting walking, but not cycling (see Appendix 4B).

In general, despite the number of studies reviewed here, the results offer little additional evidence to that provided in the *Getting Australia Active* report. This may reflect the practical difficulties of conducting scientifically rigorous programs in this setting, or there may indeed be a case to support the view that changing behaviour in this setting is complex and difficult, especially if it involves changing workplace and organisational culture without affecting the corporate 'bottom line'. There is a need for greater understanding and evaluation of desirable employer related outcomes (reduced absenteeism, job stress, turnover and improved productivity, job satisfaction) and exploration of how these relate to physical activity promotion and adoption. Despite the evidence that suggests that this will be a very difficult area in which to achieve change, well-designed and evaluated studies with more innovative and proactive intervention strategies, are still needed.

2.3 Mediated Approaches

The main advantage of 'mediated' approaches to changing physical activity behaviour is that they do not require face-to-face delivery of information and hence can be widely disseminated to large population groups. In their review of this area, Alison Marshall and Neville Owen found 20 intervention studies based on mass media or community-based programs, six studies on self-help print materials, four telephone-based interventions and four internet programs (see Appendix 3A).

This evidence builds considerably on that presented in *Getting Australia Active* which described earlier Australian and overseas mass-media campaigns as well as the *Active Australia* initiatives of 1998 and 1999.

Mass-media

Almost all the work in this area (13 publications since 1999) has used paid television and print media advertising, and the results indicate the effectiveness of this approach in raising awareness of the importance of physical activity. While there have been few positive changes in behaviour following media campaigns, many researchers have acknowledged the importance of this approach as part of broader community wide interventions. Further exploration of the use of mass media in whole community interventions is required, especially in relation to its impact on mediators of behaviour such as stage of change which may, over time, lead to population changes in physical activity.

Print materials

Six studies of print materials were reviewed. Those which involved stage-targeted and individually-tailored print materials have shown some success in changing physical activity behaviour in the short term. More work is required to explore the effectiveness of print materials with large numbers of people in large scale dissemination trials, and with hard-to-reach sectors of the population.

Telephone

Although a review of telephone mediated intervention studies (Castro and King 2002) has suggested that this might be a promising approach to increasing population levels of activity, the three papers reviewed here illustrate only small effects and high drop-out rates, particularly in studies which used automated telephone counseling systems rather than health educators. While the utility of telephone for reinforcement and social support was demonstrated in some of the primary care trials, as a 'stand-alone' intervention this medium does not appear to show great promise as a behaviour change agent.

Internet

Although the results from three randomised trials published since 1999 point to the potential of this 'new' medium for changing physical activity behaviour, the studies reviewed highlight the difficulties of engaging and retaining participants in interventions that rely solely on internet or email technology.

According to Marshall and Owen, none of the strategies reviewed is likely to be effective in isolation. Several studies have shown the potential of using two or more forms of mediated intervention (e.g. print plus telephone) or of using one of these mediated strategies in conjunction with broader community based or settings approaches (e.g. in primary care or in workplaces).

Low-cost delivery of advice, motivational prompts and guidance for behaviour change would be a great asset in terms of effecting population changes in physical activity. It remains to be seen, however, whether these approaches can completely replace the 'human' face of counselling in behaviour change.

2.4 Environments

Transport

In 2001 the National Public Health Partnership and the Strategic Inter-Governmental Forum on Physical Activity and Health produced a report on Active Transport[13] that includes a comprehensive review of work conducted in this area up to that time. The report described a portfolio approach to planning interventions, and identified determinants of active transport (e.g., demographic characteristics, attitudes, knowledge, skills, physical environment and policy environment), which could be addressed in settings such as schools, universities, workplaces, shopping centres, health services, and local government areas. Five interventions for each setting were then identified using a nominal group decision-making process. These include: pedestrian friendly environments, shower and change facilities, provision of paths and cycle ways and improved public transport. The report called for intervention strategies to be supported by appropriate data and research to monitor their effectiveness. In her review

[13] Promoting Active Transport – an intervention portfolio, to increase physical activity as a means of transport. SIGPAH 2001.

of this area, Terri Pikora found only four published intervention studies since 1999, two of which were conducted in schools and two in workplaces. Details of these studies are included in Appendix 4B.

Physical environments

At the time of writing, *Getting Australia Active*, environmental and policy change were seen to be emerging influences on population levels of physical activity. The role of sectors other than health (e.g. education, sport and recreation, transport, urban planning etc) was recognised, and the relationships between environmental variables and physical activity were described.

In their update of this evidence, Gavin McCormack, Andrea Lange and Billie Giles-Corti found 43 observational studies that add to the evidence of links between physical activity and the environment (see Appendix 4A). They list factors such as access to and proximity of facilities and open space, aesthetics and attractiveness, safety, footpaths, traffic urban design and urban sprawl as important correlates of physical activity. They also summarise a range of initiatives in the United States, which are attracting considerable research investment to assess the impact of urban design and the built environment on physical activity.

Only two intervention studies were found. One was an innovative Australian prospective study of use of a new 'rail trail' which found no significant change in physical activity among the cohort studied, even though there was an increase in bike traffic using the trail. The other study, in a UK shopping mall, found increased use of stairs by women, but not men, after point of choice prompts were installed adjacent to the escalators. This is a simple environmental change approach, which could easily be disseminated.

This update review calls for more studies with objective measures of public activity and more prospective and quasi-experimental study designs. There is also a need to further explore the interactions between, and relative contributions of, individual, social and physical environmental factors to physical activity behaviour.

2.5 Physical Activity and Chronic Disease

It is now very clear that physical activity plays a role in both the prevention and management of many chronic diseases. The 'prevention' evidence is updated in Chapter One of this report. In terms of 'management' of chronic disease, the information presented in *Getting Australia Active* focused almost entirely on hypertension and cardiac rehabilitation. While review of all the primary research relating to the role of physical activity in the management of chronic disease is beyond the focus of this report, summary reviews of work conducted in relation to overweight and obesity and diabetes are included here.

Because of its potential importance in the prevention of management of several chronic health problems, and to the prevention of falls and fractures, we have also included a summary review of the evidence relating to resistance training in older adults.

Overweight and Obesity

In her summary review of physical activity specific interventions for the prevention and management of overweight and obesity, Yvette Miller examined several recent reviews of the literature relating to both children and adults (see Appendix 5A). Although it is clear that the majority of weight loss programs are unsuccessful in the long term as lost weight is regained within five years, there is some evidence to suggest that continued professional contact and self-help groups can help to sustain weight loss.

For children, while interventions which aim to reduce sedentary behaviours by changing the home environment and the school curriculum, appear to have the greatest potential to impact on obesity, no systematic review has yet confirmed the efficacy of this approach.

Among adults, most of the work has been conducted in primary care or clinical settings, and the evidence suggests that interventions that combine dietary and physical activity interventions are more effective than physical activity interventions alone.

The evidence strongly suggests that interventions to promote healthy weight should focus on both improving nutrition and increasing physical activity. Mean energy consumption of Australian adults living in capital cities increased significantly by around 3–4% between 1983 and1995 (Cook, Rutishauer et al. 2001), and between 1985 and 1995 mean energy intake increased significantly by 11% for girls and 15% for boys aged 10–15 years (Cook, Rutishauer et al. 2001). Therefore intervention programs that address both physical activity and nutrition are more likely to rectify the energy in/ energy out imbalance to control overweight and obesity.

However, getting the message of 'energy balance' across to the whole population is complex and made more complicated by the fact that the amount of physical activity, which is necessary for weight reduction and subsequent maintenance of healthy weight, is greater than the amount advocated in current physical activity promotion messages (30 minutes a day, which is based on other health benefits attributable to physical activity). In light of the current high prevalence of overweight and obesity in all sectors of the Australian population, population-wide approaches to prevention are urgently required. This is particularly pertinent for the current 'baby boom' generation of mid-age Australians, as the number of new cases of obesity-linked health problems is likely to increase dramatically in the next twenty years.

Diabetes

In his review of the literature relating to management of diabetes, David Dunstan found 11 studies (including one meta-analysis of 14 studies) which support the view that interventions can lead to small but clinically meaningful improvements in blood sugar control (HbA_{1c}), even in the absence of marked changes in physical activity (see Appendix 5B). It is notable that one study reported seven fold increases in physical activity following 30 minutes of physician advice, followed by an additional 30 minutes of advice from a counsellor, as well as follow-up telephone calls and visits. This review also examines the promising evidence relating to progressive resistance training as a beneficial intervention for diabetes control, given the important role of skeletal muscle as a clearance site for glucose.

Larger population-based studies, which are community-based and not dependent on access to a gymnasium, with objective measures of physical activity, are now required to extend these largely 'clinical' studies. In view of the high cost to the population of pharmaceuticals for regulation of blood sugar, trials that involve combinations of physical activity and pharmacological intervention are also needed.

Progressive resistance training

In her review of the evidence relating to the importance of resistance (strength) training for improved health in older adults, Liz Cyarto reviewed 18 recently published papers (15 of these were cited in a 2003 Cochrane review), which included outcomes related to physical disability, functional limitation, impairment and/or health, as well as strength, in people aged 60 and over. (see Appendix 5C). Not surprisingly, almost all these studies reported that strength training results in increases in strength, but that this form of training was less effective for older adults with a disability. Most of the papers provide evidence to suggest that strength training may play an important role in the management of specific health problems such as diabetes, osteoarthritis and chronic heart failure. In one study, frequency of training (once, twice or three times a week) made no significant difference to improvements in strength (Taaffe 1999). Because access to a gymnasium is limited for many older adults, there is a clear need for more research into the efficacy of home and community-based strength training programs on a range of health outcomes.

Summary

Although the aim of this review was to 'update' the evidence by focusing only on recently published intervention research, it is interesting to note that the findings concur in general with the recommendations of the recent US review of physical activity interventions (Kahn et al. 2002). What is clear from all the evidence is that there is no 'magic bullet' approach to getting Australians to be more active. It is evident that all the approaches

currently being evaluated in Australia and elsewhere have the potential to make small, often short term changes to behaviour.

As the current review was essentially an update of evidence published in the last three to five years, it would not be prudent to base recommendations for 'best buys' solely on it. Instead, the updated evidence should be considered in association with that presented in the original *Getting Australia Active* publication, and in light of recommendation from ongoing reviews in the United Kingdom and the United States.

The 'community-wide' and 'environmental and policy' approaches advocated by the US task force and others essentially represents a combination of strategies aimed at raising awareness (e.g. using media), improving self efficacy (e.g. through information and counselling in different settings, by telephone or internet, in groups or individually) and improving access to places for activity, as well as the availability of physical activity programs. This combination of strategies remains the most strongly recommended approach.

There remains a need for research to implement and evaluate the impact of concurrent and potentially synergistic strategies in whole communities. Moreover, we need more carefully designed and evaluated intervention studies to assess the efficacy of individual strategies in sub-groups of the population, but particularly in those groups that are most likely to be inactive. Current evidence suggests that these include middle-aged adults, older women and Aboriginal and Torres Strait Islander people.

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Section 3

Review of relevant national strategy-related documents

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SECTION 3

REVIEW OF RELEVANT NATIONAL STRATEGY-RELATED DOCUMENTS

An assessment of relevant strategy and framework documents was undertaken to inform the development of a National Strategy for Physical Activity in Australia. The task comprised three components:

- a targeted review of the literature on the development of strategies and frameworks;
- a review of recent strategies and frameworks in Australia; and
- a strategic capacity and mapping survey (undertaken under the auspices of the National Obesity Taskforce).

The methods and findings from this review are presented below. Conclusions and overarching directions for the development of a new National Physical Activity Strategy are noted in this section while a suggested framework and agenda for development of a new Strategy are set out in Section 5.

3.1 An Evidence-Informed Approach to Strategy and Framework Development

A review of the literature on the development of strategies/frameworks was undertaken for the National Public Health Partnership (NPHP) to assist considerations of National Child Public Health Strategy (NPHP 2003) and has been used extensively here; where the review has been modified or supplemented, specific references are included. NPHP has also published guidelines on national strategy development that are of direct relevance here (NPHP 1999 rev. pdf 2003). Finally, while the literature on strategy development within public health is limited, the corporate literature can be, and was in this case, used to inform the assessment.

Public Health strategies have, since the mid 1980s, had to take account of an increasingly sophisticated concept of health; in particular, they have had to address the wide-ranging determinants and the increasingly evident pattern of inequities in health status. The trend has been for strategies to:

- become multi-dimensional;
- involve sectors other than health;
- incorporate multiple models;
- include social justice principles and recognise the importance of reducing health disparities;
- recognise the importance of prevention, early intervention and health promotion;
- find ways to integrate and sustain strategies for greater impact and efficiency; and
- attempt to engage the private sector for the public good.

The 'scaffolding' or architecture currently employed for the development of strategies comprise many components and typically may include:

- Principles
- Outcomes
- Objectives
- Roles and responsibility clarification
- Target groups (including special populations)
- Stakeholder participation
- Partners
- Collaboration with other national public health strategies (or other sectors)
- Monitoring and surveillance
- Evaluation
- Strategic Management
- Leadership, Training and Workforce development
- Research and development
- Resource allocation
- Service delivery
- Operational management and coordination

The National Public Health Partnership (NPHP) has published guidelines on national strategy development which arguably represent current best practice. These NPHP guidelines circumscribe a 3-stage development process comprising:

Stage 1: Determination of the need for the strategy;

Stage 2: Exploring whether desired outcomes can be delivered through an existing strategy(ies) before seeking the establishment of a new one; and

Stage 3: Applying a set of principles for national strategy development and review.

For Stages 1 and 2 of the development process, the guidelines pose a series of questions. For Stage 3 a set of fifteen annotated principles for national strategy development and review is put forward as follows:

1. ensure the key stakeholders are involved from the outset;
2. consolidate the expertise base;
3. establish mechanism to develop strategy;
4. articulate outcomes clearly;
5. address underlying causal factors and promotive factors;
6. ensure appropriateness and relevance;
7. build community capacity;
8. build infrastructure and program maintenance capacity;
9. validate proposed strategies and interventions at the local level;
10. consult across strategies and form coalitions;
11. collaborate with non-health agencies and sectors;
12. adopt an evidence-based approach;
13. contribute to the development of consistent national public health information;
14. ensure evaluation is included from the outset; and
15. use available data optimally

Given a decision to develop a strategy (Stage 3), four typical steps in the strategic planning process have also been described (Kaufman 1992) in the corporate literature; these are included here for completeness, for some additional dimensions in strategy development, and because it may be advantageous to use generic rather than health-specific models when working with other sectors. The four typical steps are shown in Box 1.

Box 3.1 Four Steps in the Strategy Planning Process

Step 1: Scoping
- Select type of strategic planning:
- Staff?
- Organisation?
- Whole of government?
- Plus NGOs?
- National? Regional? Hybrid?

Step 2: Data Collection
- Clarify values
- Identify vision(s)
- Identify current missions
- Identify needs

Step 3: Planning
- Identify match/mismatch
- Reconcile differences
- Select preferred future
- Derive decision rules
- Develop strategic action plan

Step 4: Implementation
- Design implementation responses
- Formative and summative evaluation
- Continue/revise

(Adapted from Kaufman, R. *Strategic Planning Plus – An Organisational Guide* 1992)

The NPHP Guidelines state that effective collaboration and coordination of national public health strategies is a multidimensional endeavour that entails effort:

- at the national, state and local level;
- good internal coordination and communication between relevant stakeholders to enable better capacity for engagement and coordination with other strategies;
- infrastructure to support coordination within and across strategies;

- information sharing;
- stakeholder engagement;
- leadership across sectors responsible for strategy development, and implementation;
- consistent information sets; and
- departmental organisation.

While Stage 3 of the NPHP guidelines include the principle 'Ensure the key stakeholders are involved from the outset', it is emphasised that additional literature about strategies to improve the health of Indigenous Australians is available from NPHP in the form of guidelines for the development, implementation and evaluation of National Public Health Strategies in relation to Aboriginal and Torres Strait Islander people (NPHP 2002). These guidelines are designed to be used to complement the general NPHP guidelines on strategy development and will be of central importance to the National Physical Activity Strategy.

3.2 Strategies and Frameworks in Australia

Strategy and Framework documents were deemed relevant for inclusion in this review according to the following criteria:

(i) specific relevance to physical activity at the national level;

(ii) relevance through diseases, conditions, health or quality of life impacts in common with physical activity (e.g. Diabetes Prevention Program)

(iii) relevance to the key settings where a national physical activity strategy would reasonably be expected to apply (e.g. General Practice);

(iv) relevance to key population groups or special populations where a national physical activity strategy would reasonably be expected to apply (e.g. Aboriginal people); and

(v) relevance to the broader strategic and political context within which a national physical activity strategy would operate.

From a chronological point of view, the main focus was on documents developed since 1999, although other documents were examined if their strategic relevance was significant. From a geographical point of view, the main focus was on the national level; however, some strategies from the State/ Territory level were reviewed. Draft documents were included where they provided a contribution to the assessment that could not otherwise be achieved (for example, the [draft] Active Australia Alliance National Plan 2000–2003).

Key documents were chosen and are shown in Box 1. These documents are presented in a grid, setting out the identity of the strategy, its 'main characteristics at-a-glance' and an effort to draw out some of the potential strategic implications for the future development of a National Physical Activity Strategy (NPAS).

Box 3.2 Strategy and Policy-related Document selected for Review

- Active Australia national framework (CDH&FS 1998)
- SIGPAH Work Plan (SIGPAH 2002)
- Active Australia Alliance National Plan (draft) 2000–2003 (AAANP 2002)
- PHAA Physical Activity Policy (PHAA 2003)
- National Heart Foundation of Australia: Physical Activity Policy (NHF 2003)
- National Heart Foundation of Australia: Physical Activity and Children – A Statement of Importance and Call to Action (NHF 2001)
- National Heart Foundation of Australia: Position Paper on Promoting physical activity (NHF 2001)
- The National Action Agenda on Obesity developed by the National Obesity Taskforce (CDH&A)
- Preventing Chronic Disease: A Strategic Framework (National Public Health Partnership) (NPHP 2001)
- NSW Chronic Disease Prevention Strategy 2003–2007 (NSWH 2003)
- National Diabetes Strategy 2000–2004 (CDH&AC)
- Child and Youth Health Intergovernmental Partnership (CHIP 2003)
- National Strategy for an Ageing Australia (OoAA 2003)
- Report of the Joint Working Group on Healthy Ageing (NPHP in press)
- National Strategic Framework for Aboriginal and Torres Strait islander Health (NATSIHC 2003)
- Guidelines for the development, implementation and evaluation of National Public Health Strategies in relation to Aboriginal and Torres Strait Islander peoples: Approaches and Recommendations. National Public Health Partnership (NATSIHC 2003)
- Report on National Obesity Taskforce Aboriginal and Torres Strait Islander Workshop, Adelaide September 2003 (AGDoH&A 2003))
- Report Of The Review Of The Role Of Divisions Of General Practice (CoA 2003)
- The Focus on Prevention Initiative (Aust Gov 2003)
- Ministerial Council on Education, Employment, Training and Youth Affairs: Strategy on Physical Activity in the Schooling and Early Childhood Sectors
- Western Australian Task Force on Physical Activity (WATF 2001)
- New South Wales Physical Activity Task Force (now PCAL – Premiers Council for Active Living) (NSWPATF 1998)

Table 3.1

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Developing an Active Australia: a framework for action for physical activity and health	Launched by Federal Health Minister June 1998. First significant health sector framework and rationale for physical activity and Health, covering • Aim • Principles • Priority groups • Implementation plan • Evaluation • Intersectoral linkages • Key Strategies • Evidence	• Framework document was the first health sector response to Active Australia. • Key Strategies of framework were reflected in the subsequent SIGPAH work plan (see below) • Rationale for Physical Activity and Health Strategy is very well articulated. • Evidence has been updated subsequently but this remains an important reference document for National Physical Activity Strategy
SIGPAH Work Plan Developing an Active Australia: A Work Plan for 2000–2003	Developed by SIGPAH to guide national governmental efforts in the promotion of health-promoting physical activity; four themes used to identify the major areas of activity: • Education • Environments • Infrastructure • Evidence The 26 initiatives of the Work Plan cross-referenced with Acting on Australia's weight: a strategic plan for the prevention of overweight and obesity. Plan was reviewed and revised in 2001–2.	Informs the drafting of a National Physical Activity Strategy (NPAS). Consider whether any 'unfinished business' from Work Plan 2000–2003 and if so, whether still relevant for NPAS. Issues include: • National Guidelines optimally disseminated? • Have needs of special populations (e.g. Indigenous, Disabled) been addressed? • Active Transport Policy? • Supportive Environments/link with local government? • School setting – e.g. PDHPE policy? • Monitoring and Surveillance systems sufficiently established? • Cross referencing with Healthy Weight 2008 needs consideration.
Active Australia Alliance National Plan (draft) 2000–2003	The Active Australia Alliance was established in 1999 to formalise an intersectoral approach between sport, recreation and health. It brought together the Australian Sports Commission, the then Commonwealth Department of Health and Aged Care, Standing Committee on Recreation and Sport, Sport Industry Australia, the Recreation Industry Council of Australia and the National Heart Foundation of Australia. A draft intersectoral National Plan 2000–2003 was developed and was designed to form the basis of a national approach. April 2001, a new sport policy, Backing Australia's sporting ability—a more active Australia, emerged. The plan was never ratified and the Alliance foundered.	Alliance provided a mechanism at the national level to ensure a more coordinated approach. It allowed for improved efficiency through shared approaches to implementation and monitoring and a forum for information sharing and consultation in systematic and opportunistic ways. Subsequently, Commonwealth Department of Health commissioned some work on alternative intersectoral models and an internal report was produced. There remains a need for a mechanism or mechanisms for the type of coordination provided by the Active Australia Alliance, but which also engage other sectors which can play an important role for physical activity (for example, Education, Private Sector, Media).

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
PHAA Physical Activity Policy Adopted at the 1998 Annual General Meeting of the Public Health Association of Australia, revised September 2002 and passed at the PHAA Annual General Meeting October 2, 2002.	PHAA Physical Activity Policy: • supports/recognises the National Physical Activity Guidelines for Australians • accepts that a combination of strategies is optimal for increasing population levels of physical activity • holds that the greatest benefits can be gained by getting those people who are sedentary to become more active. • resolves to support national strategy(ies) and affirms specific lobbying and advocacy roles of PHAA • resolves to lobby for adequate resourcing (e.g. 1% of the cost of treating diseases associated with inactivity)	• PHAA Physical Activity Policy is an important reference document for National Physical Activity Strategy. • PHAA has an important body to consider for inclusion in key strategic committees and reference groups. • PHAA willingness to lobby for investment/adequate resources is noteworthy given the findings of the 2003 strategic mapping and capacity survey; any lobbying efforts undertaken have not apparently achieved high visibility to date. • As distinct from strategic implications for governments (noted above) there may be personal implications or relevant actions for professionals engaged in physical activity policy development and research that are also members of PHAA.
National Heart Foundation of Australia Physical Activity Policy Position paper prepared by the National Physical Activity Program Committee, National Heart Foundation of Australia, April 2001.	NHFA Physical Activity Policy: • supports/recognises the National Physical Activity Guidelines for Australians • states that strategies are required which will increase incidental physical activity, regular brisk walking and other forms of active recreation. • holds that policy and practice related to urban planning, transport and related environmental issues must be addressed. • notes that effective physical activity promotion also has an adjunctive role in weight control and maintenance, although more prolonged activity and dietary change will be needed to achieve sustained weight loss among the overweight and obese.	NHFA Physical Activity Policy is an important reference document for National Physical Activity Strategy. NHFA is an important body to consider for inclusion in key strategic committees and reference groups NHFA has an important operational as well as strategic role in the promotion of physical activity. Two other key NGOs incorporating physical activity into their policy frameworks (including the context of obesity) include The Cancer Council of Australia and Diabetes Australia These three key NGOs together with the Australian Kidney Foundation and The National Stroke Foundation are working together in the Australian Chronic Disease Prevention Alliance to address primary prevention of chronic disease, with a focus on physical activity and nutrition.
National Heart Foundation of Australia: Physical activity and children – A Statement of Importance and Call to Action from the Heart Foundation	All members of the community can take greater responsibility for increasing levels of physical activity in our children. Lists opportunities and challenges for specific individuals, sectors and groups (Government and non-Government) to take increased responsibility Provides direction to a series of actions that may positively impact upon the physical activity levels of children	NHFA Physical Activity and children Call to Action is an important reference document for National Physical Activity Strategy (other comments on NHFA as above). Call to action elucidates specific actions for: • Parents • Schools • Local Governments • Planners • Transport Agencies • Community Sport and Recreation • Health professionals

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
National Heart Foundation of Australia. Promoting physical activity: Ten recommendations from the Heart Foundation.	A position paper for health professionals and organisations planning to develop and promote physical activity. May 2001. Recommends a comprehensive multi-strategy approach to increasing community levels of physical activity; makes 10 specific recommendations.	The NHFA Position Paper is an important reference document for National Physical Activity Strategy (other comments on NHFA as above). Paper makes 10 detailed/ annotated recommendations: **1.** Provide a supportive physical and social environment through settings where Australians live and work; **2.** Build 'active' public policy; **3.** Provide education and publicity about the benefits of physical activity, and access to information and life skills to enable participation; **4.** Focus on the different levels of behaviour change and tailor programs accordingly; **5.** Provide program options to suit varying social and cultural circumstances and motivations throughout the life cycle; **6.** Provide accurate advice on physical activity to key professionals within government, non-government community and private sectors that influence physical activity participation; **7.** Establish partnerships to pursue a cross-community and intersectoral approaches; **8.** Ensure quality physical education is provided to all children in all schools, and ensure physical activity options are available to children and youth in the broader community; **9.** Advocate for due priority to be given to physical activity; and **10.** Ensure equitable access to physical activity opportunities. Recommendations provide a useful checklist to apply to NPAS; overall recommendations reflect PHAA policy, including importance of advocacy.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
The National Action Plan on Obesity developed by the National Obesity Taskforce *Healthy Weight 2008 – Shaping Australia's Future (HW2008)* Australian Health Ministers established the National Obesity Taskforce in November 2002 and requested a final report by 30 November 2003. An Interim Report was provided to Health Ministers in July 2003. (N.B. Analysis provided here is based on draft versions of documentation and proposals that remained subject to final Ministerial approval at the time of writing.)	HW 2008 addresses overweight and obesity. With an initial focus on young people (0–18) and their families, the Taskforce proposed four overarching national strategies and 9 settings-based strategies within a *Framework for Action*: **Overarching National Strategies** • Support for Families and Community-wide Education • Whole-of-Community Demonstration Areas • Evidence and Performance Monitoring • Coordination and Capacity Building **Settings-based Strategies** • Child Care • Schools – Primary and Secondary • Primary Care Services • Family and Community Care Services • Maternal and Infant Health • Neighbourhoods and Community Organisations • Workplaces • Food Supply • Media and Marketing Many strategies and outcomes of HW2008 appear to be of direct relevance for a proposed NPAS; some examples include: • 'Neighbourhoods and Community Organisations' Setting proposals include substantial outcomes in supportive environments and transport policy; • 'Whole-of-Community Demonstration Areas' proposals address knowledge generation and application of best practice; • 'Evidence and Performance Monitoring' proposals address behavioural and environmental surveillance systems as well as better understanding of determinants; • 'Schools' setting proposals address improved school environments and education activities, which promote healthy eating and physical activity; and • 'Coordination and Capacity Building' proposal include leadership, professional development and networks.	**Salience:** obesity (especially childhood obesity) has emerged as the most prominent issue to capture public and thus political interest in physical activity and nutrition; a National Physical Activity Strategy needs to harness this interest and might consider the value of a (reinforcing and opportunistic) strategic focus on young people (0–18) and families as opposed to middle (e.g. 35–55) or later years (e.g. 55+) which are arguably more in line with chronic disease prevention or healthy ageing foci. **Notwithstanding the potential for synergies, the need for a *stand-alone physical activity strategy* is emphasised – not least because of the wide range of health outcomes other than healthy weight that are involved.** **Timing:** A 4-year time frame (i.e. 2004–2008) has been suggested as a first phase of a longer term approach with initial actions commencing in 2004; this would overlap with the period to be addressed by a NPAS. **Synergy of action:** Strategies, outcomes and action examples proposed under HW2008 have direct relevance for NPAS and in some instances may usefully feature in both Strategies with appropriate cross-references. **Synergy of partners:** HW2008 stipulates that actions would need to be implemented by the health sector in collaboration with other sectors of government, the private and non-government sectors. There is clearly a potential synergy between the intersectoral partnerships required for HW2008 and those required for NPAS; good coordination, clear communication and role clarification will be required across NPHP, National Obesity Taskforce, SIGPAH and SIGNAL. **Future phases and progression:** HW2008 recommends the need for action beyond 2008 to address the issues and settings relevant to adults and older Australians; when developed this phase will also have synergies as did Acting on *Australia's Weight* with first the SIGPAH Work plan. This phasing and progression needs to be considered in NPAS development process, noting the JoHA action plan priorities (see below)

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Preventing Chronic Disease: A Strategic Framework (NPHP)	Preventing Chronic Disease: A Strategic Framework – 2001 A national framework for system-wide strategic action focusing on determinants of poor health, knowledge of risk factors common to a number of diseases, and life-course perspective on predisposing factors. Framework was endorsed by the Australian Health Ministers' Advisory Council on 31 May 2001 as the basis for further national collaborative action.	Informs the drafting of a National Physical Activity Strategy (NPAS). The framework is based on public health principles and practice and strongly recognises the importance of physical activity. A National Physical Activity Strategy needs to cater for integrated approaches to prevention while emphasising the distinct contribution that physical activity can make. The Strategy needs to address how, where, and to whom to communicate more specific recommendations for physical activity that may be differentiated according to the specific condition or disease as distinct from recommendations for general health and wellbeing.
NSW Chronic Disease Prevention Strategy 2003–2007	Example of how the NPHP might be implemented. Defines a cluster of chronic diseases and related risk/protective factors (includes Smoking, Nutrition, Alcohol, Physical Activity, Stress (Mental Health); notably includes Falls-injury among elderly because of physical activity element and emerging evidence of chronic disease overall as a falls risk factor) Sets out priorities for action which include: • Conduct and evaluate a state-based pilot of an overarching 'integration' strategy (includes integrated campaign strategy) • Adopt and actively support settings-based integrated approaches (includes SNAP in General Practice and Community Health) • Make chronic disease prevention a key focus of the Health Promotion Demonstration Research Grants Scheme • Explore development of systems to improve monitoring and reporting of investments and service outputs using standardised methodology • Address inequity in the burden of chronic disease	Could inform the drafting of a National Physical Activity Strategy (NPAS) and State based responses insofar as it may represent one early example of a direction in integrated approaches to chronic disease prevention. Incorporates innovative elements that remain subject to evaluation before recommendation for routine practice. Of particular note is the emphasis on SNAP(s) with the inclusion of mental health and falls-injury prevention, piloting of integrated approaches incorporating mass media and a new collaborative centre for Aboriginal Health Promotion. First phase of implementation in NSW will include a focus on 35 to 55-year-olds.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Joint Advisory Group (JAG) on General Practice and Population Health: SNAP Framework	• The Joint Advisory Group on General Practice and Population Health was formed in 1999 to provide advice on the population health role of general practitioners (GPs). JAG comprises 3 representatives from each of the General Practice Partnership Advisory Council (GPPAC) and the National Public Health Partnership (NPHP), a consumer representative, a representative of the National Aboriginal Community Controlled Health Organisation (NACCHO) and an independent Chair. • The Smoking Nutrition Alcohol and Physical activity (SNAP) Framework for General Practice was developed by JAG in conjunction with Chairs of National Population Health Strategies. The SNAP Framework guides integrated approaches to behavioural risk factor modification in general practice, focusing on smoking, nutrition, alcohol and physical activity.	SIGPAH has arguably provided some of the strongest leadership of the national strategies towards the initial development of SNAP so that physical activity is now relatively well positioned in the integrated framework. • National Strategy might address how this work can be consolidated for physical activity as the SNAP/Lifestyle Prescription initiatives are rolled out – e.g. as part of the 'Focus on Prevention' package announced by Australian Government in 2003–4 Budget. • Incorporation in software (e.g. Medical Director) needs to be used as platform to strengthen General Practice interventions. • 'Watching Brief' and coordination mechanisms for SIGPAH/DHAC need to be considered.
National Diabetes Strategy 2000–2004	The States and Territories and the Commonwealth, together, are responsible for the progress of the National Diabetes Strategy. This collaboration by governments is inclusive of non-government and professional organisations involved in the prevention and management of people at risk of or with diabetes and is critical to achieving the results proposed in this Strategy. The National Diabetes Strategy covers the full range of elements of diabetes prevention and management including: • research to achieve a cure for type 1, type 2 and gestational diabetes; • adoption of a Public Health approach to diabetes through the implementation of primary prevention strategies to reduce the number of people at risk of diabetes; • effective case finding of people with diabetes; • management of people with diabetes; and • prevention and reduction of complications arising from diabetes. The implementation of the National Diabetes Strategy envisaged 'forging of links with the work under these strategies rather than duplicating their work with diabetes-specific messages.'	National Diabetes Strategy states that 'It is essential that links be made with the nutrition strategy, Active Australia and the proposed primary prevention strategy. The messages of these strategies and their appropriate, effective development are a key to the progress of diabetes prevention and delay.' • Evidence for prevention of type 2 diabetes has strengthened since the publication of the strategy, NHMRC has produced primary prevention guidelines (NHMRC 2001), and the Australian Government has also announced the Diabetes Prevention Program (DPP 2003). • There will be a need to ensure cross-referencing of the National Physical Activity Strategy with these initiatives. SIGPAH may need to consider whether existing mechanisms are sufficient to ensure ongoing coordination with the National Diabetes Strategy.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Child And Youth Health Intergovernmental Partnership (CHIP) The National Public Health Partnership set up the Child and Youth Health Intergovernmental Partnership (CHIP) group primarily to provide a focus for policy advice and national coordination on public health issues for child and youth health	Key objective for CHIP to mid 2004 is the development of a National Child Public Health Strategy and Action Plan New strategy will support the national agenda and build on related national frameworks. In initial stages, the focus will be on gathering intelligence and establishing an evidence base by means of mapping the child health policy activity across jurisdictions and conducting literature reviews of relevant current key issues. Identified gaps will determine how best to proceed with the consultation process and the subsequent drafting of the Strategy and Action Plan.	The National Child Public Health Strategy will build on any existing state/territory strategies and other NPHP work programs that are relevant to child health, such as physical activity (Strategic Intergovernmental Forum of Physical Activity) and nutrition (Strategic Intergovernmental Nutrition Alliance). Child Public Health Strategy and Action Plan will also have the capacity to complement other relevant agendas such as the proposed development of a National Agenda for Early Childhood by the Commonwealth Taskforce on Child Development, Health and Wellbeing, which was in consultation during 2003. • National Strategy for Physical Activity will need to reflect the coordination role of CHIP. • SIGPAH may need to consider whether existing mechanisms are sufficient to ensure ongoing coordination.
National Strategy for an Ageing Australia Development is through a three phase process: (1) drafting and release of six discussion/information papers (available on website) (2) call for public submissions and responses to the discussion papers; and (3) drafting of the final document in light of public responses	Developed by the Office for an Ageing Australia as a framework to support the Commonwealth Government's strategic response to the ageing of the Australian population. Minister for Ageing released the framework document in February 2002. This document is being used to inform action on ageing by governments, business, community organisations and individuals.	Actions detailed in the National Strategy for an Ageing Australia are broad and intended to set directions for activity rather than describe specific activities that governments, businesses, communities and others could take. National Strategy for an Ageing Australia is an important reference document for National Physical Activity Strategy; the Report of the Joint Working Group on Healthy Ageing (below) goes into more specifics.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Report of the Joint Working Group on Healthy Ageing (JoHA) Plan for action under the National Public Health Partnership (NPHP) developed in collaboration with the Positive Ageing Task Force (PATF, formerly HATF) and other stakeholders to progress the key result area of the Strategy on Healthy Ageing specifically concerned with 'Health and Wellbeing' For endorsement by Health and Community Service Ministers March 2004	Action plan has a focus on health gain in the prevention of chronic diseases and the continuing benefit of interventions late in life. Older Australians defined as aged 65 years and over. Priority areas: • nutrition (and oral health); • physical activity (and overweight and obesity); • mental health (and social isolation); • medication management; and • information analysis and marketing. Highlights value of links between Positive Ageing Task Force and relevant advisory bodies of the NPHP (e.g. SIGPAH). The Action Plan has specific and detailed recommendations of direct relevance to the National Strategy for Physical Activity – designated Actions 1.1 – 1.5 in the report as at January 2004 (see adjacent column – strategic implications are self evident given the strength and specificity of the statements)	**Action 1.1** Include older people (with specific reference to the needs of Aboriginal and Torres Strait Islander people, isolated groups, those with a disability, culturally and linguistically diverse groups, and people with dementia) as a target group in the national strategy being developed to improve physical activity. The strategy should include: (a) promotion of strategies to encourage older people to be active for good health, to prevent falls and to reduce isolation; and (b) use of older people as role models. **Action 1.2** Encourage and support maintenance and development of local physical environments, physical activity programs and support systems to help people of all age groups (including older people and people with special needs) to be physically active. These should: (a) include collaboration between AHMAC and CSMAC jurisdictions and local councils to develop appropriate infrastructure and programs; (b) build on established programs such as Rockhampton's '10,000 steps a day', Council of the Ageing's 'Living Longer Living Stronger', Heart Foundation's 'Just Walk It' and 'Heart Moves', National Walk to Work Day, Masters Games, Active Australia campaign, and ACT Sport and Recreation/YMCA's CALM project. **Action 1.3** Support information analysis and dissemination to underpin effective approaches to the promotion of physical activity for older people. **Action 1.4** Advocate for the physical activity needs of older people, for example, through inclusion of relevant topics in local and national conferences and events such as seniors and community festivals. **Action 1.5** • Support continued implementation of the SNAP (Smoking, Nutrition, Alcohol and Physical activity) Framework for General Practice, through relevant primary health care initiatives, such as the Active Script Program. • There is synergy with Falls Prevention action stipulated by the Strategic Injury Prevention Partnership (SIPP). (NPHP 2001)

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
National Strategic Framework for Aboriginal and Torres Strait islander Health Prepared by the National Aboriginal and Torres Strait Islander Health Council for the Australian Health Ministers' Conference. July 2003	Goal is 'To ensure that Aboriginal and Torres Strait Islander people enjoy a healthy life equal to that of the general population that is enriched by a strong living culture, dignity and justice'. Aims: To achieve this goal specific aims relating to life expectancy, morbidity, mortality and the prevalence and impact of particular health conditions need to be achieved. The aims listed relate to already agreed national performance indicators (NPI –indicated by number in brackets and specified at Appendix Five of the Context document) and provide the basis for measuring the impact of this National Strategic Framework on some significant indicators of health outcomes. Relevant aims include: 1. Increase life expectancy to a level comparable with non-Indigenous Australians. (NPI #5) 2. Decrease mortality rates in the first year of life and decrease infant morbidity by: Reducing relative deprivation; and Improving well-being and quality of life. (NPI #6–10, 26, 28, 32,48) 3. Decrease all-causes mortality rates across all ages. (NPI #50–56) 4. Strengthen the service infrastructure essential to improving access by Aboriginal and Torres Strait Islander peoples to health services (NPI #15–24) and responding to Chronic disease, particularly cardiovascular disease, renal disease, diseases of the endocrine system (such as diabetes), respiratory disease and cancers; (NPI #41, 43, 44, 54, 55, 56) and Child and maternal health and male health. (NPI #5–10, 25–32, 47–49)	Specific components include: To address the pre-determinants of chronic disease in adult populations, this National Strategic Framework will focus in particular on: Nutrition and Physical Activity: the impact of poor nutrition and low physical activity on chronic disease is well documented and the potential health gains of improvements in these areas are significant. **Physical activity** • Form partnerships between State and Territory governments, ATSIC, local Councils, private sponsors and sports and recreation organisations to: encourage the involvement of Aboriginal and Torres Strait Islander peoples in sports and recreational activities. • Support the Active Australia strategy (DHAC 1998). **Effective comprehensive primary health care** (including population health services and programs). Provide for comprehensive primary health care systems that include at least the following elements: • illness prevention services (including population health programs such as immunisation, antenatal care, screening programs and environmental health programs); • specific programs for health gain (for example antenatal care, nutrition, physical activity, social and emotional well-being, oral health and substance misuse). National Physical Activity Strategy needs to consider how reflect these components and the related performance indicators.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Guidelines for the development, implementation and evaluation of National Public Health Strategies in relation to Aboriginal and Torres Strait Islander peoples. Report for NPHP 2002.	Report of project designed to enhance the development, implementation and evaluation of national public health strategies, with the intent of improving their effectiveness for Aboriginal and Torres Strait Islander populations Makes recommendations/provides guidelines on the development, implementation, and evaluation of national public health strategies in relation to Aboriginal and Torres Strait Islander health	An important reference document for National Physical Activity Strategy development. Guidelines were conceived as an adjunct to guidelines for improving the development and coordination of national public health strategies. Detailed recommendations are set out under 8 headings: • Specification of target users • Background • Representation • Consultation • Issue identification • Structure of strategy • Implementation • Evaluation NPAS actions to address the needs of Aboriginal and Torres Strait Islander peoples might arguably be conceived as a separate strategy, such as NATSINSAP (NPHP 2001) and might seek compliance with the recommendations and approaches set out in this report.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Report of The Review of The Role of Divisions of General Practice June 2003 Report, which makes some 36 recommendations is subject to consideration and a response from the Australian Government is expected in the near future.	Report found that the Divisions network is making an important contribution to improving both the coordination of the delivery of health services to the community and the health outcomes of the communities that they serve; It suggested need to implement changes to ensure all Divisions: • address broader primary health care issues • maintain focus on supporting general practitioners and their practices, and • become more accountable to the community for their performance. It recommends that the scope of consultations on Primary Health Care Research, Evaluation and Development (PHC RED) research priorities be expanded to ensure the meaningful involvement of both the Divisions network and Indigenous health representatives in time for its use in determining PHC RED research priorities for the next National Health and Medical Research Council (NHMRC) research grants funding round.	Recommendation for stronger community orientation, a strong multi-disciplinary approach, collaboration within the primary health care sector and with other sectors, and an appropriate balance between health promotion, disease prevention, and treatment issues. Proposal for national performance system based on national key performance indicators for all organisations in the Divisions network. Recommends that all Divisions be required to undertake activities in relation to their core roles, focusing in particular on: • population health including the reduction of health inequalities • accreditation of general practices • education • research, evaluation and development • workforce support, and • information management and information technology. Specific national key performance indicators should monitor these activities Subject to formal response from the Australian Government, this Reports appears likely to strengthen the imprimatur for the functions served by Divisions of General Practice to place more emphasis on population health and prevention, and to open up greater opportunities for promotion of physical activity (see also 'SNAP', and 'Focus on Prevention' initiatives) The General Practice Setting is likely to be of increasing importance for the NPAS. SIGPAH may wish to consider its mechanisms for maintaining 'watching brief' and linking with the mainstream agenda for Divisions through ADGP and relevant sections of DHAC.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Focus on Prevention Initiative Australian Government: Focus on Prevention (budget announcement 13 May 2003	'An Active Healthy Australia': • Emphasis on prevention, starting with funding of $4.3 million over three years to enhance the health promotion role of primary care professionals. • Explicit about 'Lifestyle prescriptions' by GPs to encourage lifestyles that optimise health and wellbeing, such as not smoking, drinking in moderation, eating well, and being sufficiently active. 'Primary Care Providers Working Together': • $16.4 million over four years to set up a system to help primary care providers work together to improve clinical outcomes, reduce lifestyle risk factors, and help GPs to maintain good health for those with chronic conditions. Expects partnership with other health care providers. • Will include funding of a small number of pioneer general practices and Divisions of General Practice to develop evidence-based approaches to improve prevention activities and patient outcomes within a community setting.	Focus on Prevention is supportive of the SNAP initiative in particular and of Physical Activity promotion in the Primary Health Care/Community Setting in general – see comments above on the Joint Advisory Group (JAG) on General Practice and Population Health: SNAP Framework. • SIGPAH might consider how to maintain a watching brief on the implementation sites, ensuring linkages with existing initiatives such as 'Active Script'. • National Physical Activity Strategy will need to acknowledge this initiative with respect to action in the Primary Health Care Setting.
Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) comprises State, Territory and Commonwealth Ministers with responsibility for Education, Employment, Training and Youth Affairs. The Council met in Perth July 2003 and unanimously agreed to develop a national, collaborative, cross agency strategy on physical activity in the Schooling and Early Childhood sectors (MCEETYA 2003). This will involve collaboration with the National Obesity Task Force.	Strategy on Physical Activity in the Schooling and Early Childhood Sectors Ministers noted community concern about the increasing rates of physical inactivity among children and young people in Australia and associated learning and health issues and endorsed the need for a national, collaborative, cross-agency strategy on physical activity in the schooling and early childhood sectors to link with the work of the National Obesity Taskforce being undertaken under the auspices of the Australian Health Ministers' Council.	The MCEETYA initiative is of central relevance for a National Physical Activity Strategy. • MCEETYA's Targeted Initiatives of National Significance (TINS) taskforce was been given the responsibility of collaborating in the development of a strategic, nationally coordinated approach to resolving this important national issue. TINS has been asked to provide a preliminary progress report to AESOC at its November 2003 meeting. • Notwithstanding the agreement at Ministerial Council level, the States and Territories have pivotal roles in Curriculum Development and teacher support functions. • National Strategy will need to acknowledge this initiative with respect to children and young people and with respect to the school setting.

continued

Table 3.1 (cont.)

Strategy or Framework Document	Main Characteristics at-a-glance	Strategic Implications for National Physical Activity Strategy
Western Australian Premiers Physical Activity Task Force Established June 2001. Chair: Director General of Premier and Cabinet	Long-term commitment (10 years) Comprehensive strategic direction report – 'Getting Western Australians More Active' a one-year implementation plan 2002–2003 to be followed by a 4-year implementation plan. Aim – 5% increase in physical activity over the next 10 years. Membership from Department of Planning and Infrastructure, Sport and Recreation, Health and Education, WA Local Government Association, Healthway and university academics. Dedicated Website	Good example of whole-of-government/intersectoral/ comprehensive approach. Specific initiatives include: 'Find thirty. It's not a big exercise' campaign started in 2002, continued in 2003 with a focus on showing how easy it is to incorporate into a person's lifestyle. Physical Activity Awareness Day City to Surf Find thirty 4km Walk, Walk There Today to Find thirty – all cross-branding collaborations with more planned. *Research:* Physical Activity Levels of Western Australian Adults 2002 (Children and adolescent Physical activity and Nutrition Survey underway, results in May 2004.
NSW Premiers Physical Activity Task Force (PATF) established 1996. Seventeen Ministerial appointments – government, research and non-government sectors. Independent Chair. Simply Active Everyday: A plan to promote physical activity in NSW 1998–2002. An evaluation of the PATF 1996–2002 Statewide plan with four strategic themes: program development and implementation, education and information, policy and guideline development, monitoring and evaluation. Three focus areas: people; organisations; environments. 64 objectives were developed in 1998, and throughout the plan 54 of these were successfully completed. Strategic Plan linked to key settings and lead agencies.	In renewal process – new name – Premiers Council for Active Living (PCAL) – secretariat to be based at Premiers (originally Health). New Independent Chair. Research and Evaluation function through linkage with the Centre for Physical Activity and Health (CPAH) Similar initiatives in other parts of Australia include: *Victoria:* Lead Agency Committee (LAC established 1999 to deliver a whole of government approach. LAC chaired by the General Manager Community Sport and Recreation of the Department of Tourism, Sport and Commonwealth Games *Queensland* Physical Activity Taskforce (PAT). Chair: Executive Director of Sport and Recreation Queensland. Membership: Queensland Health, Education Queensland, Queensland Transport, Local Government Association of Queensland, Heart Foundation, Sport and Recreation Industry Representative, The University of Queensland and Queensland University of Technology. 'Draft' strategy developed but has not been ratified.	As in WA – a good example of whole-of-government/intersectoral/ comprehensive approach and one which has been sustained into a second phase of operation. Over seven years sustained activity with successful transition to new chair. Both WA and NSW initiatives provide useful examples. *Tasmania:* Premier's Physical Activity Council established in June 2001 The PAC community based, flexible and semi-autonomous body. Government is represented through the Dept of Premier and Cabinet, Dept of Education and Department of Health and Human Services. The secretariat is supplied by the Office for Sport and Recreation. Vision: 'All Tasmanians participating in physical activity as a regular part of their lifestyle'. five goals and associated strategies to promote physical activity in Tasmania *South Australia* Ministerial Physical Activity Forum (MPAF) – Established May 2003, Chaired by Minister of Recreation and Sport and Comprising Ministers from Transport, Health, Education, Planning and Local Government, SA Tourism Commission and officials from their respective Departments. Physical Activity Council (PAC) – Independent Chair, is intended to implement the South Australian Physical Activity Strategy: The PAC is developing a Strategy, due for presentation to MPAF early November 2003, then to community consultation. • SIGPAH may need to consider whether mechanisms to systematise information sharing across all sectors of these Task Forces might be valuable component of a NPAS.

continued

3.3 Mapping of Strategic Capacity

A national survey was undertaken in August 2003 to provide a mapping of current capacity to address overweight and obesity in Australia, particularly with regard to the framework strategies of a National Action Plan proposed by the National Obesity Taskforce. The survey examined the capacity of the health sector; while this included investment by the health sector in non-government organisations, the results include neither the independent capacity of the NGO sector nor the capacity and opportunities inherent in partnerships with industry.

Methods

The survey entailed self-completion of a computer-based questionnaire (more than 70 items) which incorporated 'drop-down menus' for a range of response options for various levels of coverage of selected strategies – ranging from nil through partial to complete coverage. Responses to questions were aggregated to show mapping results with a single value (a percentage of full coverage) against each of the main strategy areas of the National Action Agenda proposed by the National Obesity Taskforce.

Results

Results for each strategic area are presented as a bar chart showing the percentage score, as well as the lowest and highest value of State or Territory participating in the survey for that given item. As part of the survey protocol it was agreed that only aggregated data would be reported nationally and that each State and Territory would receive an individual report on those specific data, together with comparisons with the average scores for Australia as a whole. Responses to questions were aggregated to show mapping results with a single value (a percentage of full coverage) against each of the 21 main strategy areas of the national action plan proposed by the National Obesity Taskforce. Figure 3.1 highlights the characteristics of Figures 3.2–3.5.

Overall the survey results suggested that there exists currently only a very limited strategic readiness to take on the difficult challenge of halting and reversing an epidemic of overweight and obesity among Australians.

More specifically, the survey data suggested that:

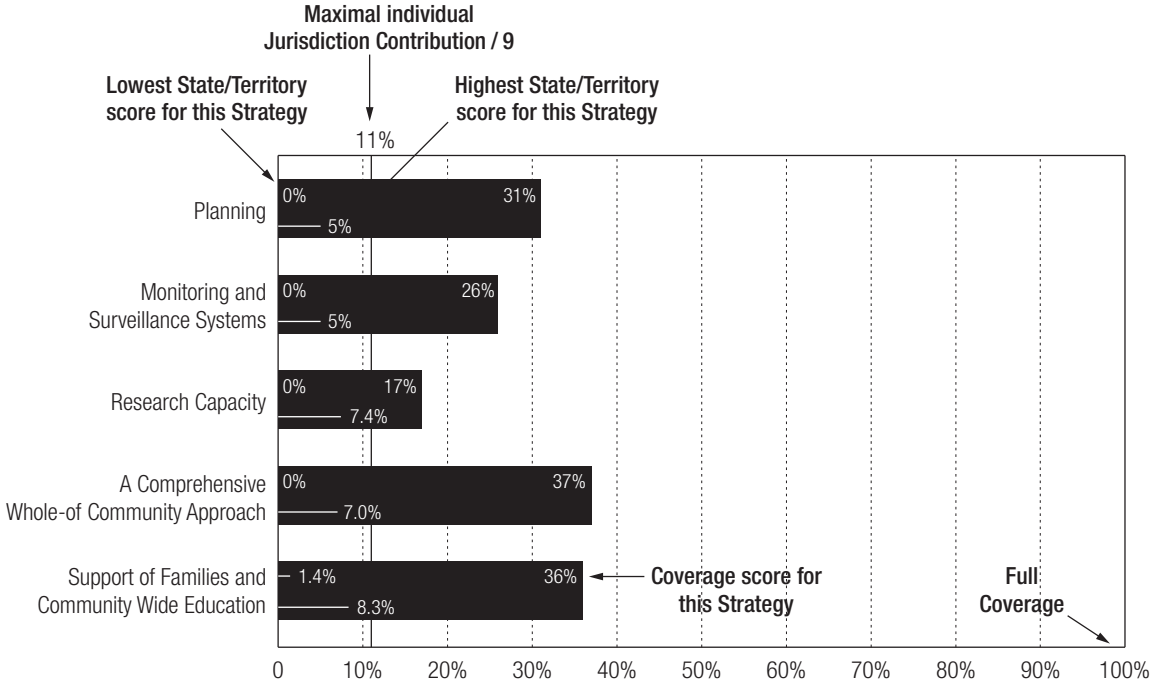
- In Australia there is currently a very limited capacity to address overweight and obesity, with respect to the strategic areas set out for the proposed National Action Agenda;
- the average score for coverage across all 21 strategy areas reported was a very low (28%) and the highest score for any strategy area was only 45%;
- for two-thirds of the strategies the coverage score was less than 33%; and total current investment across Australia in programs and salaries devoted to Nutrition, Physical Activity and Obesity amounts to an estimated per capita investment of $0.91.

Implications arising from the survey data were suggested in the report and included the following observations:

1. the current low capacity and strategic coverage mean that a new National Plan can add significant value to efforts designed to stop, and then reverse, the epidemic of obesity;
2. the survey process included a compilation of existing (discrete) initiatives suitable for wider/national dissemination; this compilation provides a potentially useful resource for future planning and provide starting points for a discussion as to whether individual jurisdictions or combinations thereof are in positions to provide leadership or to contribute to partnerships for given strategic areas of the national agenda for action; and
3. if the current per capita investment is not increased significantly, then it would not be realistic to expect there to be a significant development in strategic capacity or an impact on the problem within a 4-year timeframe.
4. Given the need to improve the evidentiary base for interventions it is noteworthy that current research capacity was assessed to be only 7.4%.
5. Coverage for Planning, Monitoring and surveillance Systems, Comprehensive Whole-of-Community Approach, Support for Families and Community Wide Education ranged from 26% to 37%

6. Coverage for Primary and Secondary Schools, Childcare/Out-of-school hours/Play groups/ Daycare, Standards and Legislation, Leadership and Workforce Development, Staffing and Networking Systems ranged from 24% to 45%
7. At 45%, coverage for Primary and Secondary Schools is the highest score reported (equal with Food Outlets). While the key message from a score of 45% is 'less than half the desirable strategic coverage', it also signals a comparative strength on which preliminary initiatives might reasonably seek to build, in terms of a national agenda for action.
8. Coverage for Neighbourhoods (Transport, Safety, Built Environment), Antenatal/Postnatal Care, General Practitioners, and other Health Care Professionals ranged from 14.6% to 31%.
9. Given the strategic importance which international experts attribute to environmental and transport-related interventions the very low coverage for Neighbourhoods (Transport 14.6%, Safety 15%, Built Environment 20%) is noteworthy.
10. While a score of 31% for General Practice (and 26% for other health professionals) highlights the need for more work it also suggests another comparative strength on which preliminary initiatives might reasonably seek to build, in terms of a national agenda for action.
11. Coverage for Marketing, Media, Food supply, Food outlets and Workplaces ranged from 6% to 45%
12. Given the strategic importance, which international experts attribute to restrictions on screen-based entertainment; the very low coverage of Media (6%) is noteworthy.
13. While scores of 45% for Food Outlets and 36% for Food Supply underline the need for more work, they also suggest comparative strengths on which preliminary initiatives might reasonably seek to build, in terms of a national agenda for action

Figure 3.1 Annotated graph – showing the key features of Figures 3.2–3.5.



Each bar shows the level of coverage nationally against a maximum of 100% (mean average of all jurisdictional scores). Within each bar high and low percentage score is shown – this corresponds to the maximum and minimum contribution of any individual jurisdiction to the national score. For example, it is instructive to be able to note that in the case of 'Research Capacity', the national score is a low 17%, but further, 7.4% of that score is contributed by one jurisdiction (against the maximal contribution of 11%).

Figure 3.2 Strategic coverage for Planning, Monitoring and Surveillance Systems, Research Capacity, Comprehensive Whole-of-Community Approach, Support for Families and Community Wide Education.

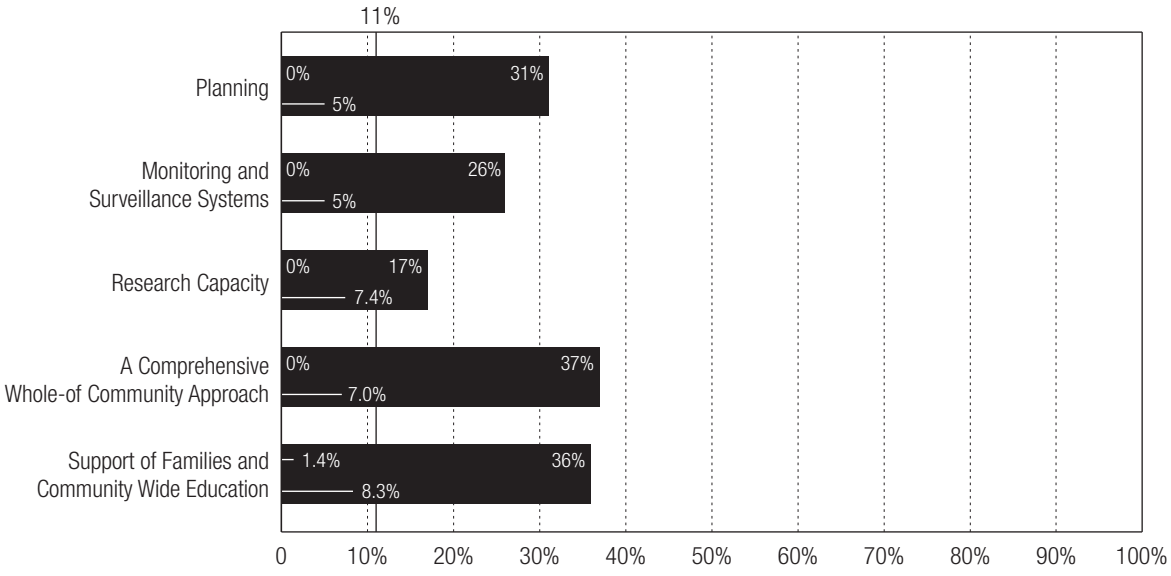


Figure 3.3 Strategic coverage for Primary and Secondary Schools, Child care/Out-of-school -hours/Play groups/Daycare, Standards and Legislation, Leadership and Workforce Development, Staffing and Networking Systems.

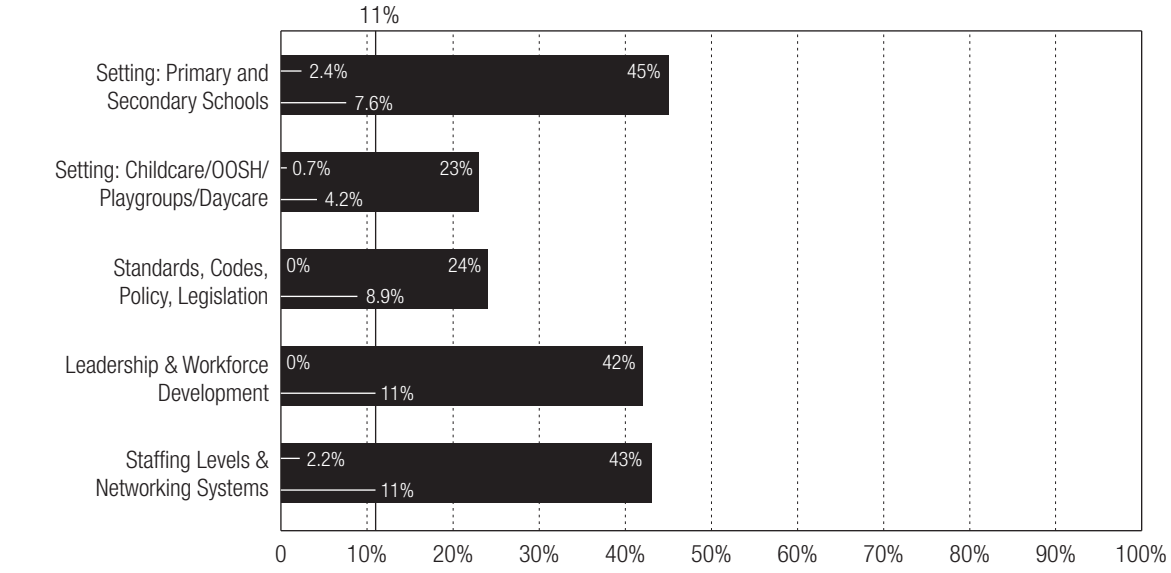


Figure 3.4 Strategic coverage for Neighbourhoods (Transport, Safety, Built Environment), Antenatal/Postnatal Care, General Practitioners, and other Health Care Professionals

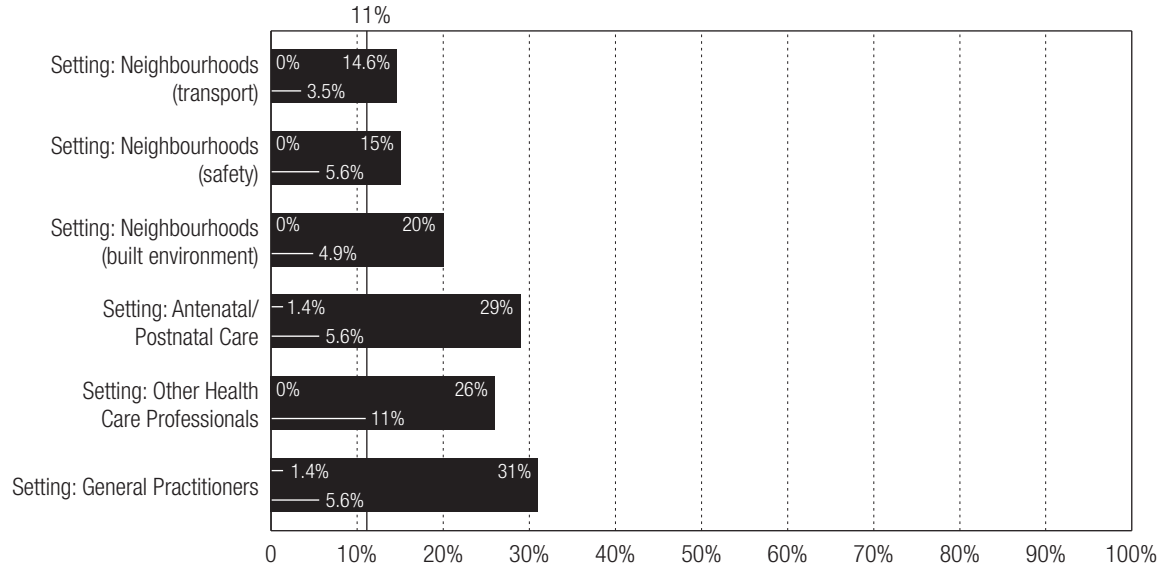
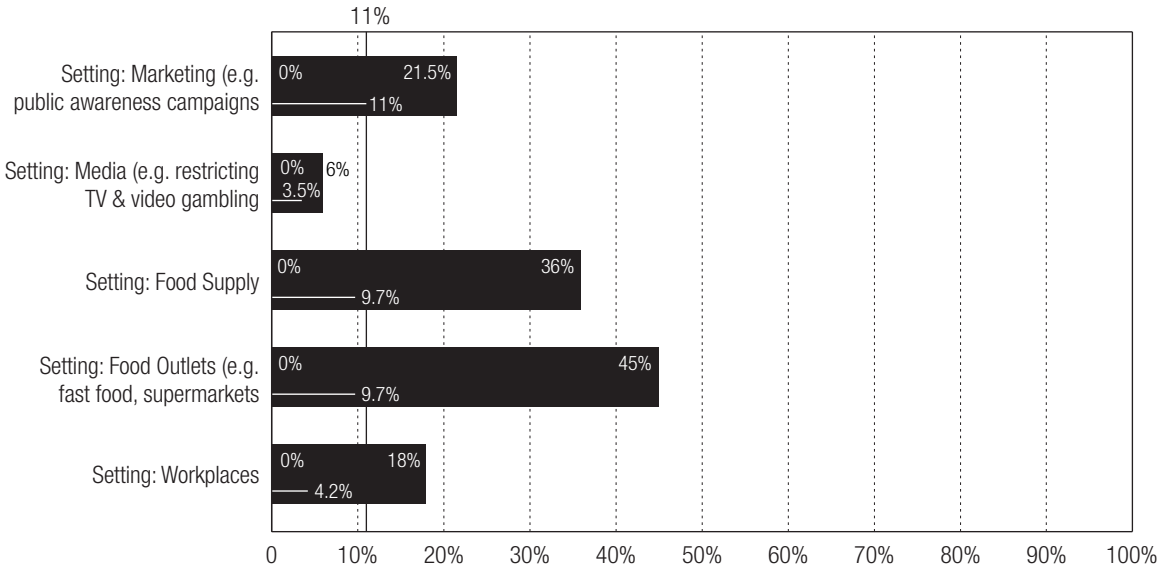


Figure 3.5 Strategic coverage for Marketing, Media, Food supply, Food outlets and Workplaces.



Conclusions

This review has identified the 'scaffolding' or architecture that may be employed for the development of the National Strategy as well as a wide range of strategic documents or frameworks, which are deemed to have strategic implications. This allows for the recommendation of a framework for the National Physical Activity Strategy in Section 5.

There has been a trend since mid 1980s for public health strategies, in response to our more sophisticated understanding of health and its complexity of determinants, to:

- become multi-dimensional;
- involve sectors other than health;
- incorporate multiple models;
- include social justice principles/recognise the importance of reducing health disparities;
- recognise the importance of prevention, early intervention and health promotion;
- find ways to integrate and sustain strategies for greater impact and efficiency; and
- attempt to engage the private sector for the public good

It is recommended that a future National Physical Activity Strategy should adhere to these trends if it is to deal with the complexity inherent in the challenge of promoting increased participation in health enhancing physical activity in the Australian population.

The National Public Health Partnership has set out guidelines for National Strategy Development; it is strongly recommended that these guidelines be applied systematically to the development of the National Physical Activity Strategy. On the basis of this review it is concluded:

- Firstly, that the need for a National Physical Activity Strategy is demonstrated (Stage 1 NPHP);
- Secondly, the case is made that the delivery of the desired outcomes requires the establishment of a distinct physical activity strategy rather than working through other existing strategies or initiatives (Stage 2 NPHP), and given the contribution of physical activity to a wide range of priority health outcomes, that the need for coordination with other relevant strategies in health and other sectors is articulated as an explicit component of the strategy;
- Thirdly that the fifteen principles for national strategy development (Stage 3 NPHP) are fully applied in the case of this National Physical Activity Strategy.

A strategic capacity and mapping survey (undertaken under the auspices of the National Obesity Taskforce) has shown the low levels of current capacity and strategic coverage in Australia. On a positive note, this means that a new National Physical Activity Strategy can add significant value. It is recommended that the ongoing mapping and tracking of capacity, strategic coverage and investment be undertaken for the National Physical Activity Strategy in a manner similar to that reported for the National Obesity Taskforce and perhaps in collaboration with that Taskforce as it advises on and monitors the implementation of 'Healthy Weight 2008' (HW2008).

The following specific documents, issues or recommendations have been identified and should be given careful consideration in the development of a National Physical Activity Strategy (NPAS) and subject to further consideration in the consultation phase of strategy development:

1. Draw on the available literature and best practice guidelines on public health strategy development. For Australia the NPHP Guidelines for National Strategy Development are recommended;
2. Articulate efficient coordination with other key strategies as an explicit component of the National Physical Activity Strategy; there is considerable scope for synergy with other strategies and frameworks within the health sector. To maximise this potential requires emphasis on an efficient coordination of the

process – this function needs a corresponding structure and adequate resourcing to be effective;

3. Implement and maintain ongoing mapping and tracking of: capacity (such as surveillance systems, research infrastructure, service infrastructure, workforce development); comprehensiveness of strategic coverage (such as a range of educational, regulatory, environmental and communication strategies across key settings and life stages); and resource allocation (such as investment per capita) as a routine part of National Physical Activity Policy development. In Australia, it is possible that this work could be undertaken by SIGPAH and NPHP in collaboration with the National Obesity Taskforce;

4. Establish Intersectoral Coordination at National Levels – overall the intersectoral nature of physical activity interventions should be considered with a view to achieving strong coordination at National level and preferably with whole of government endorsement at the highest level.

5. Implement systems and processes to enable rapid sharing of knowledge between intersectoral coalitions and groups within and between nations. In Australia, several State-based Intersectoral Task Force exist; they comprise different membership and function in different ways; clearly, there is a need for mechanisms to integrate both state and federal action as well as sharing of information;

6. Obesity Policy – Healthy Weight 2008: strategies, outcomes and action examples proposed under HW2008 have direct relevance for NPAS and in some instances may usefully feature in both Strategies with appropriate cross-references; for implementation/action plan/ priorities/phasing SIGPAH needs to consider the value of a (reinforcing and opportunistic) strategic focus on young people (0–18) and families as opposed to middle (e.g. 35–55) or later years (e.g. 55+) which are arguably more in line with chronic disease prevention or healthy ageing foci. Notwithstanding the potential for synergies, *the need for a stand-alone National Physical Activity Strategy is strongly emphasised* – not least because of the wide range of health outcomes other than healthy weight that are involved.

7. Healthy Ageing: The Joint Working Group on Healthy Ageing has stated an expectation that older persons will be included as a priority population within the National Physical Activity Action Plan when developed; this would be consistent with Australia's National Strategy for an Ageing Australia. Strategies designed to create environments supportive of physical activity will also benefit older people and may particularly be useful with respect to opportunities for walking safely. There is also potential synergy with Injurious Falls Prevention policy such as the initiatives stipulated by Australia's Strategic Injury Prevention Partnership.

8. Primary Health Care: The opportunity to reinforce and coordinate with the agenda around primary health care and general practice and selected behavioral risk factors should be carefully considered. In Australia the NPHP Strategic Framework for Chronic Disease Prevention and the 'SNAP' initiatives are pertinent to Physical Activity policy;

9. Diabetes Strategy/Diabetes Prevention Program: cross-referencing of the National Physical Activity Strategy with these initiatives is advised. SIGPAH may need to consider whether existing mechanisms are sufficient to ensure ongoing coordination;

10. Child and Youth Health: physical activity policy should include strong coordination of initiatives in child and youth heath given the increasing focus on the early years of life and the typical abundance of policies in this area. In Australia the advent of the Child And Youth Health Intergovernmental Partnership (CHIP) may facilitate this. Existing mechanisms should be

reviewed in order to assess if they are sufficient to ensure ongoing coordination and to take advantage of CHIP.

11. Aboriginal and Torres Strait Islander peoples: The National Physical Activity Strategy needs to address the needs of Aboriginal and Torres Strait Islander peoples – this might arguably be conceived as a separate strategy (such as NATSINSAP) and might seek compliance with the NPHP Guidelines, the National Strategic Framework for Aboriginal and Torres Strait Islander Health (2003) and the Adelaide Report (2003); and
12. Acknowledge the needs of people with disabilities and of CALD populations in the strategy.

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Section 4

An International Review of Policies on Physical Activity

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SECTION 4

AN INTERNATIONAL REVIEW OF POLICIES ON PHYSICAL ACTIVITY

4.1 Introduction

To achieve the goal of population-wide increased levels of physical activity it is necessary that governments at all levels play a key role in initiating, coordinating and implementing public policies that promote physical activity, enhance environments and provide increased access by the whole population (Bauman and Bellew 1999). This review provides a summary of the literature on policy, including policy formation and policy process. In the absence of any alternate, we developed a definition of what constitutes a policy on physical activity. Further, we synthesised the literature to create a set of 11 criteria for success and undertook an international review of a small but diverse group of countries to assess the focus and content of their existing or developing policy on physical activity. This inter-country comparison is restricted to a select group of diverse countries for which there was available information in English. Summary findings of this comparative research are presented as well as a brief overview of several global and regional initiatives.

4.1.1 What is policy?

Policy describes a procedure to gain desired outcomes, initiated by government, non-government or private sector organisations. It is a formal statement that defines priorities for action, goals and strategies, as well as accountabilities of involved actors and allocation of resources (Milio 2001, NSW 1998, Ståhl et al. 2002, WHO 1998). They provide a guide to action to achieve the intended goals. Policy can occur on a written (e.g. within legislation, policy documents) or on an unwritten basis (e.g. within usual practice), and it can refer to particular decisions as well as to political and bureaucratic processes (Bauman et al. 2002; Lin 2003).

> *'…a guide to action to change what would otherwise occur, a decision about amounts and allocations of resources: the overall amount is a statement of commitment to certain areas of concern; the distribution of the amount shows the priorities of decision makers. Policy sets priorities and guides resource allocation'.*
>
> (Milio 2001, p. 622)

One main characteristic of policy is the procedural aspect, in the literature this is referred to as 'policy process' or 'policy cycle' involving the phases initiation, adoption, implementation, evaluation, reformulation. In reality this process is never linear. Furthermore, a policy does not necessarily include all phases because often ad-hoc decisions are made by policy makers in response to a current matter of concern (Howlett and Ramesh 1995; Lin 2003; Stahl et al. 2002).

> *'In the formulation of policy there is a constant tension between rational solutions and more incremental policy decisions that respond to issues of immediate concern. Policy implementation is usually based on immediate needs and only minimal fundamental changes occur.'*
>
> (Lethbridge 2000, p.4)

Policy is often not a single decision, but a web of decisions or sometimes rather a non-decision. Moreover, policymaking is somewhat volatile because it is highly influenced by individual factors such as people's assumptions, ideological beliefs, knowledge, interests, and power positions as well as by social factors such as organisational cultures or socio-economic conditions (de Leeuw 1993; Bryant 2002; Kemm 2001; Lin 2003). The personal component keeps policy very dynamic due to the vested interests of the involved partners (stakeholders). The more stakeholders occur on the policy arena the more is the formulation and implementation of policy likely to be determined by competing interests. Those interest groups define their domain and try to maintain their organisational survival within that domain (de Leeuw 1993). Thus policy is often a product of negotiations between interested parties, and it is more or less rational and systematic (de Leeuw 1993; Kemm 2001; Stahl et al. 2002).

Policy is more effective if the interests of the involved groups are defined and their potential for influence is analysed (Signal, 1998). In addition, policy can be influenced by individuals or groups using a 'top down' (with minimal consultation) or on a 'bottom up' (involving interest groups operating on a grass roots level) approach (Lethbridge 2000; Bryant 2002). The mass media also plays a key role in policymaking, putting policy issues on the agenda through the reporting of events, studies and political debates. The media do not only mirror policy realities, they also help mould policies because they select, compose, and prioritise issues (Milio 1985).

Traditional areas of public policy are finance, employment, defence, environment, energy and transportation, agriculture and food, leisure and tourism as well as social welfare and health. Public policy is closely connected to people's lifestyles because it sets the term for individual choices. By the options it creates for institutions, groups and individuals it sets the bounds for what can be done (Milio, 1985; 1988, 2001).

> *'…public policy has become the most adequate and pervasive collective instrument for shaping the environments and lifestyles of populations. This it does by favouring (through incentives, direct provision, and regulation) or discouraging (by regulation, disinvestments, or taxation) the options for choices by producers and consumers, by individuals as well as public and private organisations. Thus policies, intended or not, affect every level of human activity, from the physiologic to the ecologic, and every facet of our environment, from the maternal world of the foetus to the international arena.'*
>
> (Milio 1988, p. 60)

As all public policies impact, directly or indirectly, on health, it is therefore desirable that all public policy sectors contribute to the development of healthy public policy, thus increasing the health and well-being of populations by creating supportive physical and social environments. This however, requires that policy makers in all sectors are aware of the health consequences of their decisions as well as of their accountability for health impacts. Particular emphasis should be given to health impact assessment because it assists policy making by identifying the paths through which health may be benefited or harmed, and by estimating the balance of harm and benefit (Kemm 2001).

4.1.2 Definition of a Physical Activity Policy

Taking the characteristics of policy in general (described above) and tailoring it to the agenda of physical activity, the following definition has been developed to describe key components of a policy related to physical activity.

> *Physical activity policy is a formal statement that defines physical activity as a priority area, states specific targets and provides a specific plan or framework for action. It describes the procedures of institutions in the government, non-government and private sectors to promote physical activity in the population. In addition it should define the accountability of the involved partners.*

4.2 Developing National Physical Activity Policy

Physical activity is increasingly being recognised as an important public health issue due to the accumulated scientific evidence on the numerous harmful effects of sedentary lifestyles. Although structured vigorous exercise received primary attention in the past, in recent years more emphasis has been given to the concept of 'active living' and specifically the promotion of moderate intensity physical activity integrated into everyday life and maintained throughout the lifespan. The current recommendation of 30 minutes of moderate intensity physical activity (continuous or accumulated), on five or more days a week is now widely promoted (USDHHS 1996, 2003).

Initial efforts at policy development should be conceptualised on a whole population basis because interventions targeting individuals or small groups are less likely to increase population levels of physical activity (Brownson et al. 2001; Sallis, Bauman and Pratt 1998). Subsequent, more equity-focused policy can be developed to target specific groups (such as older adults, children, people with disabilities and indigenous people) (Bauman et al. 2000; Bauman et al.; 2002).

A key element of a public health approach is creating an environment conducive to active living.

This necessitates policy interventions beyond just the health and sports sector, and integration with policy and action in other sectors such as recreation, tourism, education, transportation, housing as well as urban planning and design. Integration is required within and between government and non-government organisations as well as engagement with the private sector. In addition, particular emphasis is needed on policy development and implementation at the local level because it is at this level that much of the infrastructure and services for physical activity are provided.

A physical activity policy should comprise a set of actions and as such there is increased interest in systematic reviews on the effectiveness of diverse physical activity interventions. Findings from the recent review in the United States (US Task Force on Community Preventive Services) concluded that some informational approaches (e.g. point-of-decision prompts to encourage stair use, community-wide campaigns including other components such as support groups, risk factor screening/education and community events) as well as specific behavioural setting-oriented interventions (e.g. school-based physical education, social support interventions in community settings) are effective in increasing levels of physical activity (Kahn et al. 2002). In addition, the review concludes that effective environmental approaches, such as the creation of or enhanced access to places for physical activity, are needed because they impact on a large amount of the population. Taking these and other findings into account (Craig et al. 2003; Giles-Corti and Donovan 2003), it is evident that a comprehensive physical activity policy should include individual-oriented interventions (e.g. media campaigns, physical activity programs) as well as environmental approaches (e.g. urban planning and transportation, road safety, walking/cycling paths, stairways in public buildings, recreation areas, exercise facilities).

To develop supportive environments it is necessary that policy interventions move beyond the health and sports sector, and integrate other sectors such as recreation, education, transport, urban safety as well as urban planning and environment, placed within governmental as well as non governmental organisations, and in the private sector. Strategic intersectoral planning and action within these sectors is essential to create broad physical activity policies. Organisations need to form frameworks for action that are based on a clear strategic plan defining the roles and accountability of each partner. Then all participating members had specific tasks against which they could be made accountable (WHO 2003a; Bauman et al. 2002; Bauman and Bellew 1999).

Evaluation of policy interventions is often ignored by public health, in part, due to the methodological difficulties and financial barriers involved in macro level interventions. But outcome and process evaluation, as well as monitoring of the diffusion of physical activity policies are essential. A frequently used outcome evaluation is the measurement of population levels of physical activity; however more emphasis has to be given to process evaluation, which, for example, can occur by documenting the extent to which each component of a physical activity policy is implemented as planned (Sallis, Bauman and Pratt 1998).

4.3 International Agenda and Collaborations on Physical Activity Policy

Physical activity is increasingly being recognised by the World Health Organisation (WHO). In addition to including physical inactivity in the global burden of disease project in 2002 (WHO 2002a; Bull et al. In press) WHO has commenced the development of *Global Strategy on Diet, Physical Activity and Health* (WHO 2003b). Furthermore physical activity was selected for the focus of the 2002 World Health Day (*Move for Health*) and subsequent developments include the establishment of an *Annual Move for Health Day* (WHO 2002b) and *Move for Health Initiative*.

4.3.1 Global Strategy on Diet, Physical Activity and Health

In 2002 Member States mandated at the World Health Assembly that WHO formulate a Global Strategy on Diet, Physical Activity and Health (WHO 2002c). This strategy is specifically identified within the context of the prevention and control of non-communicable diseases. The development process

conducted during 2003 included consultation with member states, civil society, private industry and other UN organisations (WHO 2003b). An international group of experts in diet and physical activity formed an external reference committee.

The draft Global Strategy on Diet, Physical Activity and Health was released on December 5th 2003 (WHO 2004). It recommends the development of regional and national policies and action plans on diet and physical activity. National policies should be comprehensive, multisectoral and adopt a long-term perspective. The need for regional and national flexibility is recognised and it is recommended that each government select an optimal mix of a range of policies and programs such as:

1. Information and education of consumers;
2. Food and agriculture policy/support for the production of healthier food;
3. Pricing policy and subsidies;
4. Physical activity promoting policies that includes many sectors' responsibilities/urban planners may develop forms of exercising easy and safe/schools, workplace, sport and recreation facilities,
5. Better use of health services for prevention/ health service staff should provide advice to patients, governments should consider incentives to make this happen, e.g. improved financing structure for general practitioners;
6. Working with the industry/stimulate their investment in healthy messages;
7. Involvement of health professionals and consumer groups;
8. Surveillance system to monitor risk factors and their responsiveness to changes in policies (e.g. physical activity levels, tobacco use, blood pressure);
9. Investment in research to enhance better-informed policies.

The draft Strategy was considered by the Executive Committee at WHO in December 2003 and will be presented to the World Health Assembly in May 2004.

4.3.2 Global and Regional Networks on Non Communicable Disease and Physical Activity

There is a growing number of regional networks that have been set up by WHO Member States to interact around physical activity policies and programs; for example; the European Network for the Promotion of Health-Enhancing Physical Activity (HEPA) and the Physical Activity Network of the Americas (PANA).

The European network for the promotion of Health-Enhancing Physical Activity (HEPA Network), established in 1996 and coordinated by the UKK Institute for Health Promotion Research in Tampere/Finland, fosters the development of health-enhancing physical activity policy in Europe through advocacy, consultation and exchange of information. It is particularly engaged in the promotion of walking. Among other things, the HEPA Network has produced *Guidelines for the Development of National Policies and Strategies for Promoting Health through Physical Activity*, *Guidelines for Health-Enhancing Physical Activity Promotion Programs* as well as the strategy document *Promotion of Transport Walking and Cycling in Europe: Strategy Directions* (HEPA 2001).

The Physical Activity Network of the Americas (PANA), launched in 2002, is to become a network of national networks in the Americas region. Its goal is to share information, coordinate strategies and strengthen efforts to improve population levels of physical activity (PANA/RAFA 2002).

Physical activity promotion is also integrated within other regional networks that foster regional capacity building and the development of national policies and programs for the prevention of non-communicable diseases. For example, CARMEN (Conjunto de Acciones para Reduction Multifactorial de Enfermedades No Transmisibles – which translated means Sets of Actions for the Multifactorial Reduction of NCDs) in the American region, CINDI (Countrywide Integrated Non-communicable Disease Intervention) in Europe; MOANA (Mobilisation of Allies in Non-communicable Disease) in the Western Pacific region (WHO 2003d).

4.4 Criteria for a Successful Policy and Action Plan on Physical Activity

In recent times, specific criteria have been identified in the literature and international consensus meetings as key elements of a successful physical activity policy, on physical activity (Shepard et al. in press; WHO 2004). The criteria include:

1. **Consultation** with key stakeholders during development of policy and action plans – involving consideration of the national and international epidemiological evidence on physical activity (e.g. participation trends, disease – risk factor relationship)
2. Adoption of a comprehensive approach using **multiple strategies** (e.g., individual-oriented as well as environmental focused interventions) targeting different population groups (e.g. children, adolescents, women, older adults, disabled people, indiginous people)
3. Working at **different levels** (local, state and national as well as individual, whole community and physical environmental level)
4. Development and Implementation of the policy and action plan across multiple agencies by **working through coalitions, alliances and partnerships** (e.g. involving cross government, non government as well as relevant private sector partners)
5. **Integration** of physical activity policy within other related agendas (e.g. in the field of health, nutrition, transport, environment)
6. **Stable base of support** and resources to implement the policy and action plan (e.g. from politicians and government with or without support from other supporting organisations)
7. Development of an **Identity** for the implementation of the policy and action plan by means of a logo, branding and/or slogan. This may include identifying and cultivating a spokesperson or 'champion' for the initiatives as well as an advocacy/communication plan;
8. A clear statement of the **Timeframe** of the policy commitment and implementation of the action plan;
9. Specific plans and resources for **Evaluation** of the policy and action plan implementation (undertaking evidence based approaches supported by appropriate budget);
10. Statement of intent for the development and/or maintenance of appropriate **Surveillance or Health Monitoring Systems** which includes suitable measure of levels of physical (in)activity; and
11. Statement of recognition of existing **National guidelines/recommendations on physical activity** or intent to develop them.

4.4.1 Summary of Key Findings from International Review of Physical Activity Policy

Using the above 11-point criteria identied as critical components of successful physical activity policy at national level, policies from a selected group of countries were reviewed to assess the focus and content of their most recent or emerging national policy on physical activity. A literature search was undertaken and numerous web sites were audited to identify and analyse formal statements and physical activity policy and associated strategic plans or frameworks for action at national level. Countries included to date are: Australia, Brazil, Canada, Netherlands, New Zealand, Switzerland and Scotland. This work was undertaken as part of a broader program of research (Schöppe et al. 2003) and summary vignettes of 3 selected countries have been included in this report (Australia, New Zealand and Canada; Section 4.5). Below is a summary of the observations from across all countries reviewed to date.

Consultation

- All countries had undertaken broad consultation with key stakeholders within and outside government in the policy development process; this often involved representatives from science, business, politics and those working in diverse sectors such as health care, sport and recreation, heritage, education as well as transport and environment;

- Most countries had undertaken needs assessments including population-based surveys on levels of physical activity; these sometimes included data on knowledge, attitudes, health impact and associated health care costs. These data were used to develop the social, health and economic (business) case for physical activity;
- Some governments were interested in specific social issues such as doping in sports, violence and racism in sport, as well as in the increase in overweight and obesity, particularly among children and adolescents.

Multiple strategies

- All countries adopted comprehensive approaches with multiple strategies; these usually included public education (e.g. community-wide mass media campaigns); strategies aimed at creating supportive physical environments; professional training; and 'active commuting' and transportation strategies.
- Action plans usually included strategies targeting the whole population as well as specific population sub-groups (children/adolescents, women, older people, indigenous people, people with disabilities);
- Action plans reflected a combination of individual-oriented and environmental approaches but role delineation regarding which organisation was responsible for leadership, coordination, funding and implementation of specific components was rarely apparent;
- Enjoyment and social integration were stated as specific principles in several policies.
- Most policies incorporated a goal of lifelong participation and advocated regular (daily) moderate intensity physical activity as well as vigorous exercise; some countries adopted 'active living' or 'physical activity for health' foci and/or 'sport for social integration', 'sport for fitness' as well as 'elite sport.' The latter were most often present in policies with strong sport sector involvement.

Different levels

- All countries proposed to work at different levels (national, state, local) to coordinate and implement the policy and action plan;
- In general, national and state level organisations initiated and coordinated the physical activity policy and action plan whereas local level and community-based organisations were seen as the providers of the appropriate infrastructure; therefore in some countries particular emphasis was given to action from local governments and agencies.

Coalitions/alliances/partnerships

- Most countries had developed coalitions and partnerships within and between government, NGOs, and the private sector; the stated aims were to share funding for programs, to use existing resources more efficiently and to exchange information and knowledge;

Integration

- All countries attempted to link their physical activity policies to multiple agendas in the areas of health, nutrition, and education and in some cases anti-doping, transport, urban planning, and sustainability; efforts to link physical activity to policies related to healthy nutrition and the increasing problem of obesity were evident;

Stable support

- Planning and leadership was usually driven by the Health or Sport/Recreation ministries
- Although planning was often national, many programs were implemented at the regional or local level.
- There was sparse information on timeframes and budget allocation for implementing national policies and action plans; it is therefore not possible to make comparisons between countries or to identify trends in terms of national funding;

Identity

- Some countries initiated their policy under a specific brand/slogan, thereby providing an identity for the initiative (e.g. Push Play, New Zealand; Lets Make Scotland More Active, Scotland);
- There was less evidence of established political leadership or a clear 'champion';

Timeframe

- Several countries provided timeframes for and/or funding of their broad commitment to the implementation of the physical activity policy and actions; these ranged from 3 to 10 years;
- In general there was little evidence of specific timeframes for implementation of specific strategies.

Evaluation

- All countries emphasised the importance of evaluating the implementation of policy as well as the sustainability of national physical activity policies;
- Most countries included a call for process evaluation of policies as well as an assessment of the effectiveness of intervention programs;
- To date there is limited actual evidence provided on the effectiveness of a national policy comprising an integrated comprehensive approach; one exception is the regional Agita São Paulo, Brazil;

Surveillance

- There was wide variation in the existence of national surveillance systems providing population data of levels of physical activity; few countries used the same physical activity measure;
- There was limited information as to which organisations were responsible for monitoring, or how this was coordinated;

National physical activity guidelines

- Several countries had developed their own national physical activity guidelines targeted to the general population (e.g. Australia, Canada, NZ and Switzerland); Canada also had guidelines for specific population groups (older adults, children/youth);
- Other countries have adopted well-known guidelines such as the ACSM/CDC/USSG recommendations (e.g. Brazil, New Zealand, Scotland, and the Netherlands).

4.5 Summary

Physical activity is increasingly considered an important public health issue and as such requires the development of good public health policy. This review identified eleven criteria for successful policy and these provide a useful outline for the development of policy on physical activity. Other guidelines to the policy process and development of strategic plans exist in Australia (see Section 3) and these should also be reviewed and applied to physical activity.

Our review of international progress on policies on physical activity revealed its relative recency, compliance with many of the identified successful criteria and a tendency to share many attributes. The rapid increase in the number of countries engaged in the development of national policy on physical activity may be due, at least in part, to the specific focus on physical activity for *World Health Day 2002*, the subsequent development of an Annual *Move For Health* agenda, the *Move for Health* initiative (a global network) and the development of a *Global Strategy on Diet, Physical Activity and Health*. Most countries had progressed their recent policy and action plans since 1998–2000. The recency of these developments precludes commentary on the effectiveness or relative effectiveness of policy approaches.

Our international comparison revealed similarities in the methods and approaches being adopted. Most of the countries reviewed are adopting an intersectoral approach with intersectoral consultation and partnership as an integral part of the development process. The need for action across the lifespan was acknowledged as well as the need for a variety of

strategies across different settings. In most cases the available reports provide only general details of what is planned, the specifics of particular programs are not specified.

Leadership was most often located within a government department, usually in the health or sport sector, although it sometimes came from a non-government health or sport institution (e.g. NZ). There was one example of a grassroots development (Project Agita in Brazil). The importance of capacity building through workforce development and at an institutional level was recognised and usually included in the action plan. Evaluation and monitoring were often uncoordinated and ad hoc, with no clear commitment to funding these components.

We did identify some gaps in current policies. Specifically, there is little evidence of role delineation and leadership/accountability among partners, and an apparent failure to specify achievement criteria, such as clear statements of the completion timelines for proposed actions. Evidence was also limited on the extent to which there was stable financial support, provision for process and impact evaluation and monitoring of the diffusion of physical activity policies and of their long-term effects.

There are lessons to be learned from other countries' experience in developing and implementing policy and action plans on physcial activity. It is highly recommended that Australia remains engaged in the international and regional agenda and seeks to establish and maintain collaborations.

Australia

1996–2000

In 1996 the Federal Ministry for Health and Family Services and the Federal Ministry for Sport, Territories and Local Government jointly launched *Active Australia*, defining physical activity as a priority area at all government levels. This initiative, managed by the Australian Sports Commission (ASC), demonstrated a commitment nationally to promote physical activity across Australia. *Developing an Active Australia: a framework for action for physical activity and health*, published in 1998, outlined targets, strategies and a framework for action. In its first phase, 1996–2000, Active Australia focused on building partnerships between key stakeholders in the sport, recreation, education, health and business sector interested in the promotion of physical activity. The result was the formation of the Strategic Inter-Government forum on Physical Activity and Health (SIGPAH), a collaborative governmental body with representatives from the Commonwealth and States and Territory health departments and the Active Australia Alliance (AAA). The Alliance (established 1999) includes representatives from the ASC, the Commonwealth Department of Health and Aged Care (DHAC), the Standing Committee on Recreation and Sport (SCORS), the Confederation of Australian Sport (CAS), the Recreation Industry Council of Australia (RICA), the National Heart Foundation (NHF) and SIGPAH.

SIGPAH reports to the National Public Health Partnership and aims to provide strategic direction on health-promoting physical activity at national level as well as advise to the Alliance. The Alliances' *National Plan 2000–2003* as well as SIGPAH's *Developing an Active Australia: A Work Plan for 2000 to 2003* provided the basis for and direction of the national approach to increasing physical activity in Australia.

2001–2005

The launch of *Backing Australia's Sporting Ability: A More Active Australia* by the Prime Minister and the Minister for Sport and Tourism in 2001 represented the start of a second phase of *Active Australia*. This initiative originated in ASC indicated a new, more sport-oriented physical activity policy aimed at supporting Australia's best athletes as well as encouraging greater community participation in sports at the grass roots level. *Backing Australia's Sporting Ability* indicates a commitment by the ASC but also

marks a directional change of Active Australia, a shift away from promoting active communities towards more organised, elite forms of sport. ASC funding commitment until 2005 was outlined.

2003–ongoing

In 2003 SIGPAH commenced the development of a *National Physical Activity Action Plan* by commissioning a review of literature and evidence base for physical activity. Phase 2 of the development process involves consultation with stakeholders and is scheduled for early 2004.

Examples of Programs or Actions

Strategies under the banner of *Active Australia* focus on education (e.g. raising awareness of the benefits of regular physical activity), environments (e.g. schools, workplaces, sporting organisations, communities), infrastructure (e.g. access to facilities, services, knowledge) and evidence (e.g. national physical activity monitoring, evaluation and research).

The emphasis of *Active Australia* is on lifelong physical activity and regular moderate intensity physical activity as well as on more vigorous exercise. Messages delivered are positive (e.g. 'physical activity is fun and enjoyable', 'some activity is better than none, and more is better than a little'). **Media campaigns** such as *Active Australia Day* and *Walk to Work Day* as well as Australia's **National Physical Activity Guidelines**, published in 1999, advocate the benefits of participating regular moderate intensity physical activity population-wide.

Active Australia as well as the new ASC sport policy work through **collaborative action** across all governmental tiers. Since 1996 all States and Territories have been established leading committees such as physical activity task forces, and developed state wide national physical activity strategies documented in diverse public statements and reports. Particular emphasis is given to **local governments** and **transport** because they provide the infrastructure that facilitate people's choice to become active.

To ensure **coordinated action**, *Developing an Active Australia: a framework for action* identified linkages to other national strategies and agendas such as *Australia Cycling*, the *National Greenhouse Strategy, Acting on Australia's weight: a strategic plan for the prevention of overweight and obesity*, the *National Public Health Nutrition Strategy,* the *National Strategy for an Ageing Australia* as well as *Australia – An Agenda for Action for Public Health Nutrition 2000–2010*.

An **intersectoral approach** is formalised by the Active Australia Alliance including representatives from the government, non government and private sector. Moreover, both ASC and SIGPAH are key players in building *Active Australia Partnerships* an initiative involving sporting organisations, clubs, community groups, schools, universities, and the business sector, along with state and local governments. Examples of three networks funded by ASC are: the Local Government Network, the Club-Provider Network, and the Schools Network. Each aims to promote the delivery of sport and physical activity in the community.

National physical activity **monitoring, evaluation and research** is being regarded as important. A coordinated system of monitoring and reporting on the implementation of programs under the banner of *Active Australia*, across health, sport and other sectors is recommended. So far, initiatives have been undertaken to collect and monitor physical activity data (e.g. within the National physical activity surveys 1997 and 1999) and to develop standard measurement tools for physical activity to build the evidence base, guide policy direction and identify effective interventions.

Primary Sources: Australian Sports Commission (2001); Commonwealth Department of Health and Family Services (1998); Strategic Inter-Governmental forum on Physical Activity and Health (SIGPAH) (2000).

New Zealand

2001

In 2001 the Ministerial Taskforce on Sport, Fitness and Leisure released its report *Getting Set – For an Active Nation* (Graham Report), setting out a 25-year vision on enhancing physical activity in New Zealand, and identifying a number of problems in the sport and physical recreation sector such as lack of coordinated action and leadership, inadequate governmental support, little education sector involvement, insufficient community integration and volunteer development, uncoordinated dissemination and use of research as well as low physical activity participation of many New Zealanders.

2002–ongoing

As a result of these inadequacies the governmental organisation SPARC (Sport and Recreation New Zealand) was formed in 2002 following the merger of the Hillary Commission, the New Zealand Sports Foundation and the policy arm of the Office of Tourism and Sport to work on policies and programs related to elite forms of sport as well as physical recreation. Since then, SPARC became the leading governmental agency responsible for promoting physical activity in New Zealand, and its organisational objectives and key initiatives to be pursued until 2006 were released in *Our vision, our direction*. SPARC aims at becoming a world leader in sport and recreation contributing to national pride, community identity, social cohesion and health, as well as economic growth. The new organisation will ensure that physical activity is a priority in New Zealand. For that purpose, SPARC recently produced the discussion document *Towards an Active New Zealand – Developing a National Policy Framework for Physical Activity and Sport* (2004) to further the development of a National Policy Framework to be launched in 2004.

Examples of Programs or Action

Initiatives comprise support to the sporting infrastructures (e.g. funding, professional development, advice), initiation of national campaigns and communication strategies (e.g. Push Play, Hyperzine), action in selected sports within the Priority Sports strategy (e.g. development of pathways in junior sport, talent identification, athlete career education), strengthening knowledge, skills and research (e.g. through national physical activity surveys, physical activity guidelines for adults as well as infants) as well as policy advice for the Government. **Programs** are, for example, Green Prescription, Calling the Game, Coaches Count, He Oranga Poutama, Sports Mark as well as KiwiWalks. All SPARC policies and programs are funded by the government as well as by New Zealand Lottery Grants, and they target both the whole population and specific population groups such children and youth, women, older people, disabled people as well as Maori (Treaty of Waitangi) and Pacific island people. Program settings are workplaces, schools, clubs, communities, transport and general practice.

SPARC mainly focuses on reducing physical inactivity, and therefore specific physical activity strategies are to be developed for youth, women, people with disabilities, Maori and Pacific island people, volunteers and coaches as well as people living in rural areas. Besides that, SPARC initiatives must **integrate other national strategies** such as those concerned with health, nutrition, disability and public transport. Some links exist concerning the *Healthy Eating – Healthy Action. Oranga Kai – Oranga Pumau: A Strategic Framework (2003) and The New Zealand Health Strategy* (2001).

A key role of SPARC is to operate as a **strategic investor** and **coordinator** in the sport and recreation sector, and to foster **intersectoral collaboration** among governmental and non-governmental organisations as well as the private industry. For example, governmental cooperation exists with the Ministry for Health, the Ministry of Education, the Ministry for Culture and Heritage and Department of

Conservation. Moreover, SPARC collaborates with the National Heart Foundation and the Cancer Society of New Zealand.

SPARC also works at **all governmental levels** with a particular emphasis on the **local level** to promote community schemes that deliver participation in physical recreation, and to develop local ownership. This basically occurs through financial support given to National Sport Organisations (NSOs), National Recreation Organisations (NROs), Regional Sport Trusts (RST s) and Territorial Authorities (Tas), and building **partnerships** with these organisations as well as with other regional and local providers of physical activity interventions (e.g. schools, sport organisations, clubs, District Health Boards, Public Health Units).

SPARC provides a clear **organisational identity** by means of logo (a star jumping figure and slogan – ihi Aotearoa) as well as a focal point in the form of the CEO Nick Hill. Moreover, the organisation tree of SPARC outlines a clear organisational structure including four main operational units: Sport Development, New Zealand Academy of Sport, Physical Recreation as well as Policy, Research and Monitoring.

The Policy, Research and Monitoring Unit will monitor, evaluate and analyse the social, economic and cultural returns to the Government and the sector from sport and physical recreation activity. Besides that, a Physical Activity Joint Monitoring Group with representatives from the Ministry of Health, Statistics New Zealand and SPARC jointly developed a new instrument to record the prevalence of physical activity in New Zealand's adult population and provide information on additional dimensions and settings. Furthermore, SPARC fosters the evaluation of regional and local programs and projects (e.g. Active Community initiatives).

Primary Sources: Sport & Recreation New Zealand (SPARC) (2004); Sport & Recreation New Zealand (SPARC)(2002); Hillary Commission (1998)

Canada

1980's

One of the first national policies on physical activity, the *Active Living* concept was launched in 1986 at the Canadian Summit on Fitness. This concept marked a dramatic shift away from a rigorous prescriptive exercise model ('no pain, no gain') to an approach that emphasised daily physical activity of moderate intensity undertaken across the life span.

1990's

Canada's national physical activity policy is led mainly by Health Canada (Fitness and Active Living Program Unit) and Sport Canada. Their mandate to promote physical activity among Canadians is legislated under the Fitness and Amateur Act (1961), which is currently being updated. Other important partners are non-profit organisations that are engaged through various Active Living Alliances e.g. the Active Living Alliance for Canadians with Disability; the Active Living Alliance for Older Canadians. The largest national alliance, consisting of over 40 organisations, is focused on building and maintaining environments conducive to physical activity. The Coalition for Active Living was established in 1999.

Health Canada, Sport Canada as well as the Active Living Alliances have produced a range of policy documents in consultation with key stakeholders inside and outside the government. These define physical activity as a priority area and outline objectives as well as a framework for action (e.g. *Physical Inactivity: A Framework for Action – Towards Healthy, Active Living for Canadians* (1997); *Making the*

Case for a National Physical Activity Strategy for the Health of Canadians (2002); *Canadian Sport Policy* (2002); *Framework for a Pan-Canadian Physical Activity Strategy* (2003)). Other policy documents particularly address ethical issues (e.g. fair play, anti-harassment, anti-violence, equity) as well as specific needs of women and girls (e.g. access, integration and development in the sport system). Physical activity is also part of the *Integrated Pan-Canadian Healthy Living Strategy* currently under development, and there are some links in terms of public transport. For example, the Coalition for Active Living advocates the recommendations for a *National Active Transportation Strategy* (2002) by the non-profit organisation *Go for Green*, focusing on street safety and facilities for cycling, walking and wheeling.

Population-based surveys (e.g. 1998/1999 National Population Health Survey (NPHS), 2001 Physical Activity Monitor) and other findings underline the need for action in enhancing physical activity participation, indicating that the majority of Canadians are insufficiently active and revealing an increase of children and youth obesity.

The Canadian Sport Policy as well as the Active Living policy include **multiple strategies** such as public education (e.g. community-wide campaigns, mass media strategies, physical activity programs and services), development of supportive environments (e.g. active transportation, sport and recreation facilities, walking/cycling pathways), dissemination of knowledge and research (e.g. through monitoring and evaluation) as well as training of coaches and leaders in the community.

The new *Pan-Canadian Physical Activity Strategy* also includes incentives for employers to adopt physical activity **promoting policies at workplace** as well as tax incentives to encourage physical activity among Canadians. Target groups are all Canadians but children, adolescents, women, older adults, persons with disabilities and Aboriginals in particular.

The *Canadian Sport Policy* mainly focus' on vigorous and competing exercise while the *Active Living* concept promotes everyday physical activity. Both policy concepts emphasise the enjoyable component of physical activity and its ability to contribute to self-esteem and well-being.

Canada's physical activity policy is implemented by federal, provincial/territorial and municipal governments and agencies. Particlular emphasis is given to communities that encourage people's readiness to become active (e.g. by the provision of physical activity programs for all age groups, indoor/outdoor sporting and recreation facilities, active transportation). Other strategies aim at **removing barriers** to physical activity (e.g. unaffordable fees, poorly maintained facilities, physical barriers for persons with disabilities, reduced physical activity schedules and programs as well as linguistic and cultural barriers).

Intersectoral collaboration exists among partners within and outside the government. Sport Canada works in close cooperation with the Coalition for Active Living and with other federal departments (inter/intra-departmental partnerships), with provincial/territorial ministries responsible for fitness and recreation as well as with the private industry.

Leadership and coordination is provided by Health Canada, Sport Canada as well as the Coaltion for Active Living. Their combined role is to initiate and coordinate Canada's physical activity policy while the provincial/territory and municipal governments and agencies are most important for implementation.

Health Canada provides financial support to *Active Living* initiatives through its *Physical Activity Contribution Program: Supporting Healthy Living for Canadians*, a funding program targeting national volontary not-for-profit organisations (e.g. sports associations) that wish to undertake physical activity enhancing initiatives. Sport Canada predominatly funds high performance sport for athlets but also National Sport Organisations, Multi-sport/Service Organisations and National Sport Centres that increase sport participation among the population.

Evaluation and monitoring of programs, services and policy objectives is postulated within several strategic plans. The Canadian Fitness and Lifestyle Research Institute (CFLRI), a not-for-profit research institution, provides a surveillance structure (Physical Activity Monitor) producing knowledge of physical activity (determinants, outcomes) for individuals, professionals and policy makers to take action. The Physical Activity Benchmark Program, a joint venture with the Fitness and Active Living Program Unit of Health Canada and the Interprovincial Sport and Recreation Council, serves as a tool to measure progress in reducing population levels of physical inactivity and provides information for monitoring the results of implementation strategies and initiatives.

Primary Sources: Coalition for Active Living. (2003); Coalition for Active Living. (2002); Federal-Provincial/Territorial Advisory Committee on Fitness and Recreation. (1997); Health Canada (2002); Sport Canada (2002)

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Section 5

Conclusions and Recommendations from the Literature Review updating the Evidence on Physical Activity: Towards a National Physical Activity Strategy for Australia

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SECTION 5

CONCLUSIONS AND RECOMMENDATIONS FROM THE LITERATURE REVIEW UPDATING THE EVIDENCE ON PHYSICAL ACTIVITY: TOWARDS A NATIONAL PHYSICAL ACTIVITY STRATEGY FOR AUSTRALIA

This section provides a summary of the findings of the review of literature on physical activity undertaken as a consultancy commissioned by SIGPAH as part of Phase I of a process towards developing a new National Physical Activity Strategy in Australia. The work was undertaken between September and December 2003 by a national consortium of researchers with expertise in physical activity and health. Input from SIGPAH and national and international experts was also sought at the National Physical Activity Conference held in Fremantle, Western Australian (November 2003).

The consultation involved updating the epidemiological and intervention focused literature on physical activity with a specific focus on the past three years (2000–2003) using the documentation and structure of *Getting Australia Active* as a framework (Bauman et al. 2002). This update also added two new sections: a review of existing health strategies and policy documents in Australia, especially those related to public health and physical activity; and an international review of policy on physical activity in other countries.

This section provides a brief summary of the four key areas of the full report, followed by a summary of the critical issues and influencing factors pertinent to the development of a new National Physical Activity Strategy in Australia.[14]

[14] Section 5 has been designed to serve as a stand alone document which might contribute, with little or no editing, to the Phase II consultation process envisaged for the development of the National Physical Activity Strategy in Australia.

5.1 Summary of the Update Review of Epidemiological Evidence 2000–2003

The promotion of physical activity is developing as an important part of health sector investment, but constant referral to the evidence base is needed to justify this position. This review updated the epidemiological evidence that physical activity confers a positive benefit on health and reduces risks of ill health, using research studies in the peer reviewed scientific literature published between 2000–2003. The review focused on evidence for health gain among adults who are active, compared with those who are inactive. Areas covered included cardiovascular disease, diabetes, stroke, mental health, prevention of falls and obesity. Although the focus was only adults, it should be noted, that at the time of writing the Australian Government was in the process of convening a special workshop to develop Physical Activity Recommendations for Children and Youth (Trost 2003). Association between physical activity and cardiovascular disease has been observed and replicated over five decades of research, and shows a graded relationship, with the maximal risk reduction observed among the inactive who move to becoming at least moderately active. Since 2000, several papers have added to our understanding of this relationship, and strengthened the evidence that moderate and brisk intensity walking reduce the risk of cardiovascular disease; in two studies the risk reduction of brisk walking was at least as great as for vigorous activity. The evidence base for women, older adults and special populations has strengthened, with consistent and very similar evidence to that provided by previous studies, that moderate intensity activity on most days provides the greatest risk reduction.

The prevention of diabetes in populations is an important public health concept, given its increase in incidence and an increase in the at-risk aging population in developed countries. Early cross sectional epidemiological research explored the relationship between physical activity and diabetes and showed high rates of diabetes in sedentary population, especially of indigenous and Pacific Island populations. More recent evidence comes from population-based observational cohort studies and in the last few years, even stronger evidence

has become available from randomised controlled trials, which have explored the concept of diabetes prevention. There has also been an increase in work around high-risk populations, particularly those with impaired glucose tolerance. The implications of this work are substantial; there is now evidence that diabetes can be prevented in those at high risk using lifestyle modification including increased levels of physical activity. One caveat is that these interventions are very expensive and intensive. The Diabetes Prevention Project (DPP) trial cost around $3,000 per participant in the intensive lifestyle intervention. This represents a substantial cost and the detailed program may be difficult for whole populations to participate in and adhere to in the long term.

Cancer prevention studies have proliferated during this period, but the certainty of the evidence base is balanced by studies that do and don't show protective effects of physical activity. The best evidence remains for colon cancer, with better evidence accumulating for breast cancer prevention (especially among postmenopausal women). Evidence for physical activity benefits on other cancers remain mixed.

Other areas, such as mental health, have attracted less research. Four review papers have described the mental health benefits of being active, but all attest to the methodological limitations of the research conducted to date, and the consequently limited inferences possible in this area. Although widely thought to be beneficial to different aspects of mental health, the evidence base for the benefits of physical activity remains limited in terms of the quality of evidence. Similarly, no major new evidence in the area of falls prevention has been published during this period, although that which previously existed is quite compelling, and risks of falls in the elderly are consistently reduced among those exposed to balance training, muscle strengthening and physical activity interventions.

In summary, this review has further strengthened the epidemiological evidence base for physical activity and health, with the most exciting new information in the diabetes prevention realm where diabetes incidence can be substantially reduced by increased physical activity and weight loss among populations at high risk.

5.2 Summary of the Update on the Effectiveness of Interventions to Increase Physical Activity – What Works?

For the purpose of the Phase I consultation, 17 Australian experts[15] in physical activity research were engaged to review physical activity intervention studies which targeted specific population groups, specific behavioural settings, used mediated approaches or addressed the physical environment. The evidence base for each of these areas varies in both quality and quantity.

Each review identified the published literature during the period 2000–2003 using standard search techniques. Literature published prior to 2000 was included in the sections on worksites and the environment, due to weaknesses in the coverage of these areas in *Getting Australia Active* (Bauman et al. 2002). Although the environmental area is now a major focus of research efforts, much of the published work to date has focused on assessing the direction and magnitude of associations between features of the physical environment and levels of physical activity. It is still early days for intervention research in this field.

The methods and findings of the review of intervention research, along with detailed summary tables, are presented in Appendix 1; a longer summary is also provided in Section 2. A brief summary of the major findings for each population and setting is provided below.

Populations

Most studies of interventions aimed at children and adolescents (in 'out-of-school' settings) were conducted in the United States, either as after school, summer camp or family based interventions. Comprehensive school and family programs showed most promise, but overall the results were mixed. There has been considerable interest in studies

[15] Kylie Ball, Wendy Brown Liz Cyarto, David Dunstan, Billie Giles–Corti, Andrea Lange, Gavin McCormack, Yvette Miller, Gary Moorhead, Alison Marshall, Neville Owen, Terri Pikora, Jo Salmon, Ben Smith, Tya Shannon–Smith, Trevor Shilton, and Anna Timperio

aimed at reducing time spent watching TV and individual studies have reported positive results. However, as was the case for a recent review of these interventions by the US Task Force on Preventive Community Services, the Australian reviewers also found the evidence of effectiveness to be inconclusive (Kahn 2002).

Comparatively little research has been conducted with interventions aimed at young adults (18–30 years) and the results from available studies are mixed. As young adulthood is a time of transition and significant life events (such as getting married and having children) and these are associated with significant declines in physical activity, it was concluded that more work is still required with this population group (Ball 2004).

More work has been undertaken with older people than with younger adults, with a focus on both general levels of physical activity and on the more specific forms of resistance and strength training (Moorhead 2004). Most of the intervention studies have involved either individual advice or group settings such as gymnasia or walking groups, and those interventions with higher levels of contact, complemented by multiple reinforcements of the physical activity message were most successful. There were few new studies investigating interventions with the very old and frail elderly. The review concluded that more work was required with older people in communities that do not have access to specialised 'exercise' facilities.

There was very little published evaluation of interventions with Aboriginal and Torres Strait Islander peoples although there appears to have been an increase in the number and diversity of programs in ATSI communities (Shilton 2004). It was concluded that there is a need for much more effort in this area, in relation to both measurement and interventions, in urban, as well as in rural and remote, indigenous peoples.

The review of physical activity interventions for the 'special' population groups of people with obesity and type 2 diabetes found limited evidence of success from health education and behaviour modification strategies in clinical settings or with selected families or individuals. Combined lifestyle (diet and physical activity) strategies with continued professional contact were found to be most successful in the short term, for example DPP Trial, but less resource intensive interventions are still required for more widespread dissemination and improved sustainability.

Settings

Schools are frequently identified as an important setting for health promotion. The review found eight studies published since 1999, but only two of these reported a significant increase in physical activity (Salmon 2004). The most effective interventions included changes to the school's physical or policy environments, in addition to curriculum change. There is considerable interest in the development of transport programs aimed at increasing walking and cycling to school. However, only two published studies of strategies to increase active transport to/from school were found. Only one of these showed significant improvements in public but not private schools (Pikora 2003).

Primary health care remains an important setting for the promotion of physical activity and the review of recent publications confirmed that brief interventions involving verbal advice and written materials (eg pamphlets booklet or 'prescription') can produce short-term changes in physical activity (Smith 2004). Studies which involved partnerships between GPs and other health professionals and in which patients received counselling outside the routine contact time with the GP, appeared to show more consistent improvements in PA (Smith 2004).

The workplace is frequently cited as having considerable potential in terms of the health, productivity, and quality of life of the workforce. This review identified 32 intervention studies published since 1998 with most involving health checks, education programs, motivational prompts, exercise programs or incentive based programs. The more successful interventions adopted a more comprehensive approach, including changes in the organisational structure and culture of the workplace, as well as individual programs (Marshall 2004). One new study which promoted active commuting reported success in changing levels of walking but not cycling (Pikora 2004). The review concluded that, while the workplace has

considerable potential for physical activity promotion, more well-designed and evaluated studies are required.

Mediated Approaches

Print and electronic media have frequently been used to promote physical activity, either alone or in combination with other strategies. The review of recent work in this field found that mass media can be effective in raising awareness but that changes in behaviour were rarely reported (Marshall and Owen 2003). Interventions using tailored print materials or telephone interventions have shown some success in changing physical activity behaviour in the short term. It was concluded that better results might be obtained when more than one 'mediated' approach is used, or when media are used as part of a coordinated 'whole community' intervention.

Environment

The influences of the physical and social environment and of policy change have received increased attention in the last few years. Much of the early research aimed to establish new measurement methods and identify the relative importance of many possible environmental elements (Pikora et al. 2003). While this review of recent work found 41 observational studies, only two intervention studies were located (McCormack and Giles Corti 2004). As was the case in the US review (see Table 5.1) it was concluded that simple point of choice interventions aimed at stair use can be effective in changing physical activity behaviour.

Discussion

Although the aim of this review was to 'update' the evidence by focusing only on recently published intervention research, it is interesting to note that the findings concur in general with the recommendations of the recent US review of physical activity interventions (Kahn et al. 2002). In this ongoing US work, established under the guidance of the Task Force on Community Preventive Services, interventions were grouped into three strategy areas: informational approaches; behavioural and social approaches; and environment and policy approaches. Ongoing work is focusing on urban form (design), land use planning and changes to transportation.

Current findings from this work are summarised in Table 5.1, and show that school based physical education, community wide campaigns and 'improved access' combined with information, are the three most strongly recommended approaches to increasing physical activity. While our Australian update found two new studies to add to the evidence of effectiveness of school-based interventions, the reviewers concluded that *combined* in and out of school approaches might be the most effective way forward in promoting physical activity to children and adolescents.

Our review also found some new evidence of the effectiveness of whole community interventions, such as the 'Wheeling Walks' project which combined mass media and other locally based strategies. To some extent, whole community interventions can also help to provide social support for physical activity within communities, which was one the strategies also 'recommended' by the US report. In relation to the other two strategies 'recommended' by the US Preventive Services report, our review found substantial new evidence on the effectiveness of individually adapted health behaviour change programs, especially for older people and in the primary care setting. It must be reiterated however, that we need to design more innovative ways of delivering these programs than the traditional face-to-face mode that underpinned the successful diabetes prevention interventions.

Both the US review and the current update found evidence of success with point of decision prompts to use stairs. It should be remembered, however, that a large proportion of the Australian population does not have access to stairs, so that the impact of widespread dissemination of this strategy would be largely limited to able-bodied people who live and work in environments with stairs and who are not constrained by the presence of young children in strollers and prams.

Best Buys?

As the current review was essentially an update of evidence published in the last three to five years, it would not be prudent to base recommendations for 'best buys' solely on this alone. Instead, the updated evidence should be considered in association with that presented in the original *Getting Australians Active* publication, and in light of recommendations from ongoing reviews in the United Kingdom and the United States.

What is clear from all the evidence is that there is no 'magic bullet' approach to getting Australians to be more active. It is evident that all the approaches currently being trialled in Australia and elsewhere have the potential to make small, often short term changes to behaviour. In essence, the 'community wide' and 'environmental and policy' approaches advocated by the US task force are simply a combination of strategies designed to raise awareness (e.g. using media), to improve self efficacy (e.g. through information and counseling, face-to-face from teachers or health professionals, by telephone or internet, in school classes, work or community groups or individually) and to improve access to places for activity, as well as the availability of physical activity programs. This combination of strategies remains the most strongly recommended approach, not withstanding the fact that much work is required to test the efficacy of these individual strategies in the Australian context, and to implement and evaluate the impact of concurrent and potentially synergistic strategies in whole communities. Moreover, it is evident that we need more carefully designed and evaluated intervention studies to assess the efficacy of individual strategies in sub-groups of the population, but particularly in those groups who are most likely to be inactive. Current evidence suggests that these include middle-aged adults, older women and Aboriginal and Torres Strait Islanders.

Table 5.1 Summary of recommendations from the US Guide to Preventive Services

Informational Approaches	
• 'Point of decision' prompts to promote stair use	Recommended
• Community wide campaigns	Strongly recommended
• Mass media campaigns	Insufficient evidence
• Class room based health education focused on information provision and skills related to decision making	Insufficient evidence
Behavioural and Social Approaches	
• School based PE	Strongly recommended
• College based health education and PE	Insufficient evidence
• Classroom based health education focused on reducing TV watching and video playing;	Insufficient evidence
• Family based social support	Insufficient evidence
• Social support interventions in community settings	Recommended
• Individually adapted health behavior change programs	Recommended
Environmental and Policy Approaches	
• Creation of or enhance access to places for activity combined with information outreach activities	Strongly recommended

Source: Kahn et al (2002) The effectiveness of interventions to increase physical activity. A systematic review. American Journal of Preventive Medicine. 22 (4 Suppl):73–107.

5.3 Summary of Key Points from the Review of National Strategies and Policy Documents in Australia

A review and assessment of existing strategies and frameworks, identified as directly or indirectly relevant to physical activity, and mostly from within the health sector was undertaken to inform the development of a National Strategy for Physical Activity in Australia. The task comprised three components:

- a targeted review of the literature on the development of strategies and frameworks;
- a review of recent strategies and frameworks in Australia; and
- a review of results from a strategic capacity and mapping survey undertaken under the auspices of the National Obesity Taskforce.

More details of the method and findings from this review are presented in Section 3. Key findings and recommendations are summarised below.

Trends in Health Policy

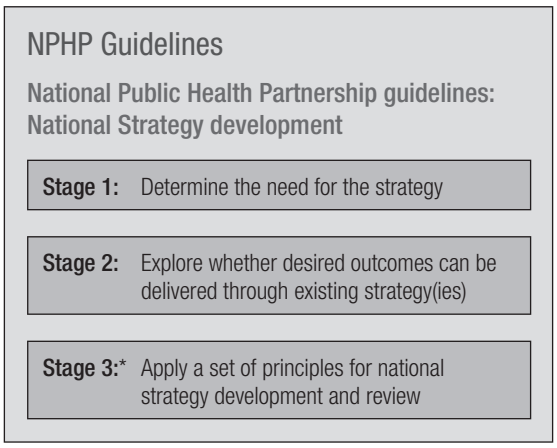
The promotion of physical activity is inherently complex because of the multiplicity of determining factors and because solutions require action beyond the health sector alone. In keeping with overall trends for public health strategies since the mid 1980s, a National Physical Activity Strategy will need to respond to the complexity. In practical terms this means a strategy should:

- be multi-dimensional;
- involve sectors other than health;
- incorporates multiple models;
- include social justice principles/recognises the importance of reducing health disparities;
- recognise the importance of prevention, early intervention and health promotion;
- seek integration and sustainability of its component sub-strategies for greater impact and efficiency; and
- attempt to engage the private sector for the public good

Developing Health Policy

It is strongly recommended that the National Public Health Partnership guidelines for National Strategy Development (National Public Health Partnership, 1999) be applied to the process of developing a National Physical Activity Strategy (see Figure 5.1); and specifically the fifteen principles for the development process as stipulated in Stage 3 (see Figure 5.2).

Figure 5.1 Guidelines for the Development of National Strategy



Source: National Public Health Partnership (1999)

Review of Existing Strategies relevant to Physical Activity

A review of existing health policy in Australia was undertaken and it identified a large number of existing strategies with direct or indirect relevance to physical activity. These included strategies aimed at sub population across the life course, at specific diseases (e.g. diabetes) and in some cases settings (e.g. the SNAP Framework for General Practice). A snapshot of the policy landscape 2003–2004 is shown schematically across the life course in Figure 5.3.

That a range of policies with relevance to physical activity exists is important and should be viewed as a positive. Moreover, it is not surprising that this should be the case, given the mounting and compelling evidence that physical activity is linked to a range of national health priorities including Cardiovascular Health, Cancer, Diabetes, and Injury Prevention. (Bauman et al. 2002) This landscape

provides the opportunity for multiple points of leverage over time on physical activity related activities and it potentially provides a variety of sources of funding and resources. The review therefore notes the considerable scope for synergy with other strategies and frameworks within the health sector. Although it was beyond the scope of that review to consider relevant strategies outside of the health sector, it was noted that the potential for synergy and opportunity exists there also.

Notwithstanding the potential for synergies with health and other strategies, the need for a stand-alone National Physical Activity Strategy is strongly emphasised – not least because of the wide range of health outcomes, other than healthy weight, which are involved. There is, however, a clear need for efficient coordination between other strategies within and outside of the health sector. Acknowledgment of physical activity as a relevant or even essential component within a range of national strategies is not a guarantee that the necessary allocation of resources will follow; nor does it ensure overall coordination of any investments that do occur. Coordination across the strategies is required so that unhelpful duplication and gaps in essential coverage are avoided. It is strongly recommended that this coordination aspect be articulated as an explicit component of future physical activity policy development. Specific recommendations on opportunities for coordination and linkages between strategies and a future National Physical Activity Strategy in Australia are made in Section 5.5.

Findings from a recent mapping of strategic capacity in Australian Governments Health Sector

In addition to the review of national strategies, the findings from a recent review of strategic capacity and mapping survey undertaken under the auspices of the National Obesity Taskforce were considered. The findings are summarised in detail in Section 3,

Figure 5.2 Principles for Development of National Strategy – Stage 3 of the NPHP Guidelines

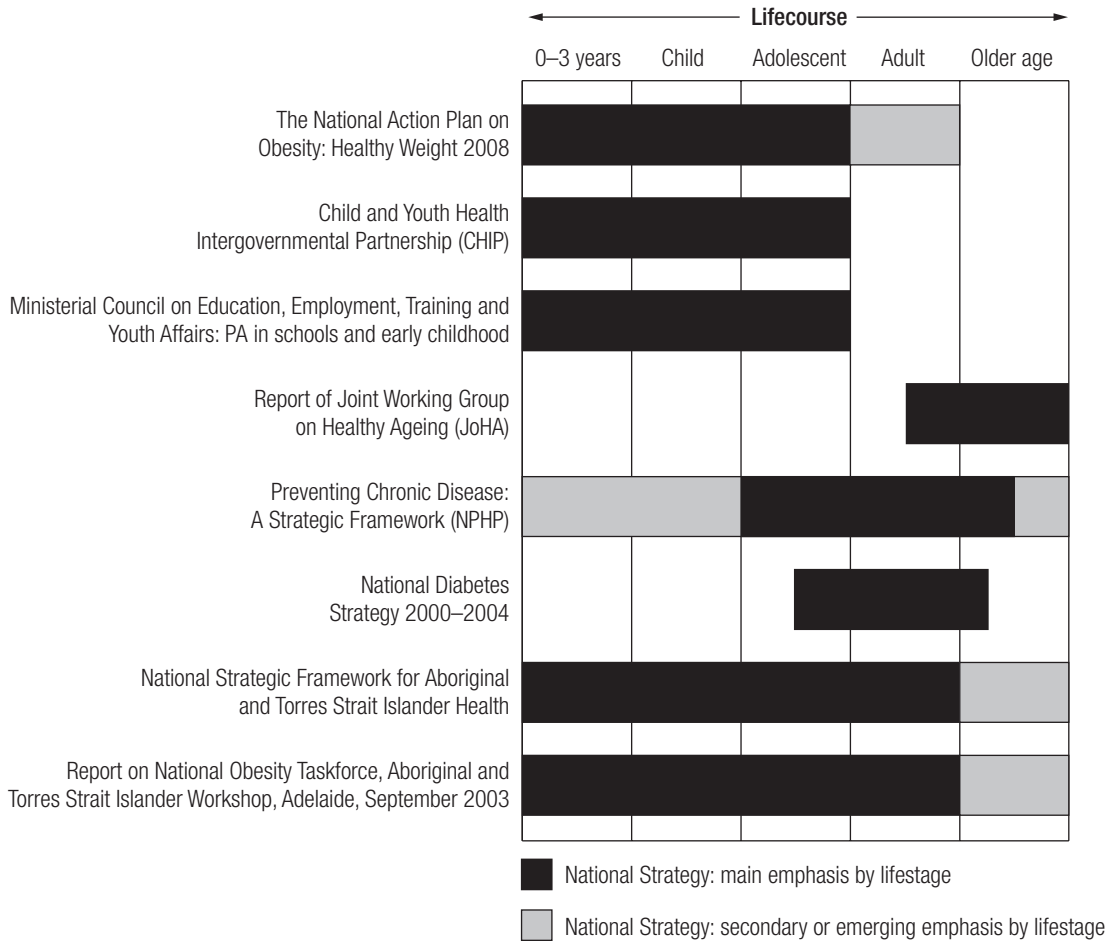
Principles for National Strategy Development

Stage 3: Apply a set of principles for national strategy development and review

- Ensure the key stakeholders are involved from the outset;
- Consolidate the expertise base;
- Establish mechanism to develop strategy;
- Articulate outcomes clearly;
- Address underlying causal factors and promotive factors;
- Ensure appropriateness and relevance;
- Build community capacity;
- Build infrastructure and program maintenance capacity;
- Validate proposed strategies and interventions at the local level;
- Consult across strategies and form coalitions;
- Collaborate with non-health agencies and sectors;
- Adopt an evidence-based approach;
- Contribute to the development of consistent national public health information;
- Ensure evaluation is included from the outset; and
- Use available data optimally

Source: National Public Health Partnership (1999)

Figure 5.3 A Snapshot of the Health-related Policy Landscape in Australia



however in brief, the results reveal that the current capacity and strategic coverage for the promotion of physical activity in Australia is well below optimal levels. It is recommended that ongoing mapping and tracking of capacity, strategic coverage and investment be undertaken as part of a future National Physical Activity Strategy in a manner similar to that proposed by the National Obesity Taskforce. It is possible that this work could be undertaken in collaboration with the Taskforce. Their activities will be undertaken to provide advice on and monitor the implementation of 'Healthy Weight 2008' (Australian Government Department of Health and Ageing 2004).

Options for framing the National Physical Activity Strategy that take account of the literature reviews are set out in Figures 5.4–5.6. In Figure 5.4 the key features or 'scaffolding' of a National Strategy are identified (these complement the NPHP guidelines on strategy. Figure 5.5 sets out a possible schema for structuring the Action Components of a National Physical Activity Strategy; it has been adapted from the work of the National Obesity Taskforce. Importantly, the schema highlights the multi-dimensional or comprehensive approach required with suggested leadership role delineation for the Federal and State levels.

Figure 5.6 sets out a possible draft framework for a National Physical Activity Strategy in a way that attempts to capture the essential elements from the literature on strategy development. These Figures are not mutually exclusive – taken together they provide resources and tools which may point the way towards the required framework for a National Physical Activity Strategy.

Figure 5.4 Key Components or 'scaffolding' identified by the review that might be employed for the development of the National Physical Activity Strategy

Figure 5.5 Draft Schema for Structuring the Action Components of a National Physical Activity Strategy in Australia

Action Strategies		National Strategies (Australian Government Leadership)			
Settings Strategies (State and Territory Leadership)	Child Care	Community-wide Education	Whole-of-Community Demonstration Areas	Evidence and Performance Monitoring	Coordination and Capacity Building
	Schools – Primary and Secondary				
	Primary Care Services				
	Family and Community Care Services				
	Local Government				
	Neighbourhoods and Community Organisations				
	Sport and Recreation				
	Fitness Industry				
	Media and Marketing				

Particular attention is drawn to 'Resource Allocation' in Figure 5.4 given that total current investment across Australia (by all Government Departments of Health) in programs and salaries devoted to Nutrition, Physical Activity and Obesity amounts to an estimated per capita investment of less than AU$1 (one dollar). It is important to acknowledge that if the current per capita investment (reported in the AHMAC National Obesity Taskforce Strategic Capacity Survey 2003) is not increased significantly, it is unrealistic to expect any significant developments in strategic capacity or an impact on the problem of inactivity.

5.4 Summary of the Review of International Policy on Physical Activity

This section of the review explored the literature on policy, including policy formation and policy process, to identify a definition and the key characteristics of successful public health policies. In the absence of any alternate, a definition of what constitutes a policy on physical activity was developed. Further, a set of 11 criteria for a successful policy and strategic action plan were created from a synthesis of relevant literature. These criteria were used to review a selected number of countries to assess the focus and content of their existing or emerging policy on physical activity. The methods and findings from this review are presented in more detail in Section 4. Selected summary points are provided below.

Policy is a formal statement that defines priorities for action, goals and strategies, as well as accountabilities of involved actors and allocation of resources. They provide a guide to action to achieve intended goals, initiated by governmental, non governmental or private sector organisations (Milio 2001).

Public policy is policy at any level of government. Traditional areas of public policy are finance, employment, defence, environment, energy and transportation, agriculture and food, leisure, tourism as well as social welfare and health. As all public policies impact, directly or indirectly on health, it is desirable that all public and private policy sectors contribute to the development of healthy public policy. This approach has the greatest potential for increasing the health and well being of the Australian population. It requires, however, that policy makers in all sectors are aware of the health consequences of their decisions as well as of their accountability for health impacts. Particular emphasis is to be given to health impact assessment because it assists policy making by identifying the paths through which health may be benefited or harmed, and by estimating the balance of harm and benefit (Kemm 2001; WHO 1988).

In response to the epidemiological evidence and potential to modify levels of physical activity, governments as well as non-government organisations have recognised the need for policy changes to impact on whole population (Brownson et al. 2001). To achieve the goal of population-wide increased levels of physical activity, it is necessary that governments at all levels must play a key role in initiating, coordinating and implementing public policies that promote physical activity enhancing environments accessible by the whole population (Bauman and Bellew 1999).

Definition of a Physical Activity Policy

Taking the characteristics of policy in general and tailoring it to the agenda of physical activity, the following definition has been developed to describe key components of a policy related to physical activity.

> *Physical activity policy is a formal statement that defines physical activity as a priority area, states specific targets and provides a specific plan or framework for action. It describes the procedures of institutions in the government, non government and private sector to promote physical activity in the population. In addition it should define the accountability of the involved partners.*

Criteria for a Successful Policy and Action Plan on Physical Activity

In recent times, specific criteria for successful physical activity policy and action plans (often called 'strategies') have been identified in the literature and at international consensus meetings. (Shepard et al. 2004) These criteria are summarised below:

- **Consultation** with key stakeholders during policy development as well as consideration of the epidemiological evidence on physical activity (e.g. trends, needs assessment)
- Comprehensive policy approach with **multiple agencies**, using multiple strategies (individual-oriented as well as environmental interventions) and targeting different population groups (e.g. children, adolescents, women, older adults, disabled people, indiginous people)
- Working at **different levels** (local, state, national; individual as well as social and physical environmental level)

- Implementation of the policy via **coalitions, alliances and partnerships** (e.g. cross government, non government as well as private sector involvement)
- **Integration** of physical activity policy within other related agendas (e.g. in the field of health, nutrition, transport, environment)
- **Stable support** and resources to implement the policy (e.g. from politicians, governments, organisations)
- **Identity** of the policy by means of a logo, branding or slogan (supported by leading agencies, sports champions and governments, and disseminated within advocacy)
- **Timeframe** of the policy commitment
- **Evaluation** of the policy (systematic approaches supported by budgets)
- **Surveillance** structures in place to monitor the policy
- **National guidelines on physical activity**

Review of International Policy

Using the set of criteria reported above, a review of initiatives in selected countries was undertaken to assess the focus and content of their existing or developing policy on physical activity. More details of this inter-country comparison are provided in Section 4 and additional publications are planned.

In summary, there has been a rapid increase in the number of countries progressing the development of national policy and action on physical activity. This increase may reflect the focus physical activity recieved as part of World Health Day 2002 and the subsequent development of an annual Move For Health Day agenda and the Move For Health Initiative – a global network for action and the promotion of physical activity.

Most of the countries reviewed are adopting an intersectoral approach as demonstrated by initiatives in Scotland and Switzerland. Consultation and partnership between sectors at a high level of government is an integral part of the process and action plan for implementation. The need for action across the lifespan is acknowledged, and the need for a variety of stratgies across different settings.

In most cases the available reports provide only general details of what is planned, the specifics of particular programs (e.g. physical education curriculum content, promotion of stair climbing) are not specified. These specific details may be available in subsidary planning and implementation documents that are not available via the websites.

The review identified several countries where leadership on physical activity orginates from the government department of sport or a similar institution (e.g. New Zealand), from non-government agencies (e.g. Pakistan) as well as 'grass roots' development that has led to a national and regional policy and agenda for physical activity (Agita in Brasil).

The importance of capacity building, through workforce development and at an institutional level is recognised and usually included in the strategic plans. This was true also for the areas of evaluation and monitoring and the need for enhanced investment in research.

Although the recency of development precludes commentary on the effectiveness or relative effectiveness of these policy approaches, some apparent gaps were identified. Specifically, there is little evidence of role clarity between partnerships and an apparent failure to specify achievement criteria, such as clear statements of the completion timelines for proposed actions. Evidence was also limited on the extent to which there was stable financial support, provision for process evaluation and monitoring of the diffusion of physical activity policies and of their long-term effects. It is suggested that these omissions are given careful consideration in the development of a National Physical Activity Strategy in Australia.

Summary

Overall the international comparison revealed a number of similarities in the methods and approaches being adopted around the world in the development of policy on physical activity. This may reflect recent global and regional consultations and collaborations as a consequence of the World Health Organisation's process to develop a Global Strategy on Diet, Physical Activity and Health (WHO 2004). Australia's past efforts on policy for physical activity,

e.g. Active Australia, received recognition worldwide and has been the platform for other countries to design their program and agenda. Although efforts and international collaboration in this area are relatively new, it seems likely that there are lessons to be learned from each country's experience in developing and implementing policy and action plans on physical activity. It is highly recommended that Australia remains engaged in the international and regional agenda and seeks to establish and maintain collaborations.

5.5 Issues and Key Recommendations Towards the Development of a National Physical Activity Strategy

The following issues, recommendations, and specific strategic documents were identified during Phase I review of evidence. It is suggested that these are given careful consideration in the development of a National Physical Activity Strategy (NPAS) and subject to further consideration in the consultation phase of strategy development.

Issues

Public health practice needs to be underpinned by good public health policy (Nutbeam 2003). Current public health policy and strategies have responded to an increasingly sophisticated understanding of health and the complex web of health determinants by:

- becoming multi-dimensional (multiple strategies or 'comprehensive approaches');
- involving sectors other than health;
- incorporating multiple models;
- including social justice principles,
- recognising the importance of prevention, early intervention and health promotion; finding ways to integrate and sustain strategies for greater impact and efficiency, and
- by attempting to engage the private sector for the public good.

Successful policy on physical activity in Australia will require consideration of these trends. It is highly recommended that available literature or best practice guidelines for the development of public health strategies are used. The development of a new National Physical Activity Policy in Australia should consider the process recommended by NPHP in the guidelines for National Strategy Development and specifically the fifteen principles for the development process (NPHP 1999). Taken together with the 11 criteria for successful policy and actions plans on physical activity, they provide a useful outline for the process as well as content.

Key Recommendations

1. Draw on the available literature and best practice guidelines on public health strategy development. For Australia the NPHP Guidelines for National Strategy Development are recommended;
2. Articulate efficient coordination with other key strategies as an explicit component of the National Physical Activity Strategy; there is considerable scope for synergy with other strategies and frameworks within the health sector. To maximise this potential requires emphasis on an efficient coordination of the process – this function needs a corresponding structure and adequate resourcing to be effective;
3. Implement and maintain ongoing mapping and tracking of: 1) capacity (such as surveillance systems, research infrastructure, service infrastructure, workforce development); 2) comprehensiveness of strategic coverage (such as a range of educational, regulatory, environmental and communication strategies across key settings and life stages); and 3) resource allocation (such as investment per capita) as a routine part of National Physical Activity Policy development. In Australia, it is possible that this work could be undertaken by SIGPAH and NPHP in collaboration with the National Obesity Taskforce;

4. Establish Intersectoral Coordination at National Levels – overall the intersectoral nature of physical activity interventions should be considered with a view to achieving strong coordination at National level and preferably with whole of government endorsement at the highest level.

5. Implement systems and processes to enable rapid sharing of knowledge between Intersectoral coalitions and groups within and between nations. In Australia, several State-based Intersectoral Task Force exist; they comprise different membership and function in different ways; there is a clear need for mechanisms to integrate both state and federal action as well as sharing of information;

6. The strategies, outcomes and action examples proposed under the Obesity Policy – Healthy Weight 2008 (HW2008) have direct relevance for a National Physical Activity Strategy and in some instances may usefully feature in both HW2008 and a National Physical Activity Policy with appropriate cross-references. For implementation, SIGPAH needs to consider the value of a strategic focus on young people (0–18) and families as opposed to middle (e.g. 35–55) or later years (e.g. 55+) which are arguably more in line with chronic disease prevention or healthy ageing foci. Notwithstanding the potential for synergies, *the need for a stand-alone National Physical Activity Strategy is strongly emphasised* – not least because of the wide range of health outcomes other than healthy weight that are involved.

7. Healthy Ageing: the Joint Working Group on Healthy Ageing has stated an expectation that older persons will be included as a priority population within the National Physical Activity Action Plan when developed; this would be consistent with Australia's National Strategy for an Ageing Australia. Strategies designed to create environments supportive of physical activity will also benefit older people and may particularly be useful with respect to opportunities for walking safely. There is also potential synergy with Injurious Falls Prevention policy such as the initiatives stipulated by Australia's Strategic Injury Prevention Partnership.

8. Primary Health Care: the opportunity to reinforce and coordinate with the agenda around primary health care and general practice and selected behavioural risk factors should be carefully considered. In Australia the NPHP Strategic Framework for Chronic Disease Prevention and the 'SNAP' initiatives are pertinent to Physical Activity policy;

9. Diabetes Strategy/ Diabetes Prevention Program: cross-referencing of the National Physical Activity Strategy with these initiatives is advisable. SIGPAH may need to consider whether existing mechanisms are sufficient to ensure ongoing coordination;

10. Child and Youth Health: physical activity policy should include strong coordination of initiatives in child and youth heath given the increasing focus on the early years of life and the typical abundance of policies in this area. In Australia the advent of the Child And Youth Health Intergovernmental Partnership (CHIP) may facilitate this. Existing mechanisms should be reviewed in order to assess if they are sufficient to ensure ongoing coordination and to take advantage of CHIP.

11. Aboriginal and Torres Strait Islander people: The National Physical Activity Strategy needs to address the needs of Aboriginal and Torres Strait Islander peoples – this might arguably be conceived as a separate strategy (such as NATSINSAP) and might seek compliance with the NPHP Guidelines, the National Strategic Framework for Aboriginal and Torres Strait Islander Health (2003) and the Adelaide Report (2003); and

12. Acknowledge the needs of people with disabilities and of culturally and linguistically diverse populations in the strategy.

5.6 A Draft Framework for a National Physical Activity Strategy

To facilitate future discussions a draft framework for a National Physical Activity Strategy is shown in Figure 5.6.

Figure 5.6 A Draft Framework for a National Physical Activity Strategy

A National Physical Activity Strategy (2004–2010)[16]

Strategic Intent

An example might be: 'Assist Australians to enjoy the highest levels of good health in the world by promoting increased participation in physical activity'

Goals

Examples might be:

- Achieve better health, social and economic outcomes through actions which first stop and then reverse the increasing rates of sedentary behaviour
- Increase the proportion of Australians who participate in adequate levels of physical activity to maintain or enhance their health
- Ensure children, young people, families and communities have the requisite knowledge, skills, opportunities and resources for a physically active lifestyle
- Address the broader social and environmental determinants of sedentary and active lifestyles
- Focus action on giving people the best possible chance to maintain or enhance health through a physically active lifestyle as part of their routine, everyday contacts and settings

The Need for Action (Rationale)

This section might usefully outline health gains available, widespread impacts socially and economically, greatest gains come from moving out of the most sedentary category, the need for a population wide effort, the evidence is accumulating but is already sufficient to prompt us to action, a decision to take no action is a decision to allow levels of sedentariness to worsen and would be unethical.

Guiding Principles

Examples might include:

Actions should:

- Concentrate on solutions not problems – with a bias for action on health promoting environments.
- Be long-term and sustainable, recognising that behaviour change is complex, difficult and takes time.
- Help those most in need and close the health gap between different population groups as a result of geography, ethnicity, and socio-economic status.
- Promote the positive benefits of active living.
- Empower and assist all groups to take action according to their own opportunities and responsibilities.

Target groups (including special populations)

to be specified – with rationale

16 Suggested model based on 'Healthy Weight 2008 – Shaping Australia's Future' released by the National Obesity Taskforce

Settings Strategies (Emphasis: Leadership by State and Territory Governments)

see possible schema in Figure 5.5

National Strategies (Emphasis: Leadership by Australian Government)

see possible schema in Figure 5.5

Coordination and Capacity Building

see possible schema in Figure 5.5

(includes collaboration/coordination mechanisms with other national public health strategies (and sectors), strategic management, operational management coordination, infrastructure support, resource allocation protocols, service delivery standards and guidelines, community and stakeholder participation, leadership, training and workforce development)

Evidence and Performance Monitoring

see possible schema in Figure 5.5

(includes monitoring and surveillance systems, measurement development, analysis, evaluation, policy and action research to inform planning and management, and enhance accountability)

Whole of Community' Demonstration Areas

see possible schema in Figure 5.5

(includes integrated actions from all the Settings implemented in discrete population areas as potential models for wider long term implementation in other communities and to enhance community ownership and capacity for sustained action)

Community-wide Education

see possible schema in Figure 5.5

(includes planned mass media communication and education, overall marketing strategy for the National PA Strategy, public relations, use of 'new' technologies; leadership by Australian Government but strong engagement required by all States and Territories for successful and efficient outcomes)

Roles and responsibility clarification

see possible schema in Figure 5.5

Emphasis of National Strategies is on Australian Government leadership – Emphasis of Settings Strategies is on State and Territory Government leadership

Resource Allocation

Acknowledge that if the current per capita investment (reported in the AHMAC National Obesity Taskforce Strategic Capacity Survey 2003) is not increased significantly, developments in strategic capacity or an impact on the problem of inactivity are unlikely.

Partners

e.g. Emphasis on intersectoral nature of physical activity policy, growth in State-based task forces, need for intersectoral mechanisms at Federal level, need for mechanisms to share knowledge and innovation across the State based task forces in systematic way

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