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Title: *The medicalisation of prevention: Health promotion is more than a pill a day*

The Medical Journal of Australia in an editorial published in the May 5 edition, sent out a challenge to all involved in health promotion and public health by stating “An estimated one million Australians at high risk may not have been receiving recommended preventive treatments” [1]. The writers documented the large number of high risk Australians not taking their antihypertensive and statin medications, but made no mention of the benefits that could be made by lifestyle modification, or a combination of both strategies.

Prevention should not be about just taking two pills per day. Prevention must include a healthy lifestyle that reduces risk factors, promotes healthy relationships and optimises wellbeing and longevity. The prevention of cardiovascular events needs more emphasis on practical public health and health promotion. We need to remember smoking cessation, reduced salt intake, more fruit and vegetables and other nutrition improvements, being physically active, weight management and other lifestyle factors.

The recently released Australian Burden of Disease Study Impact and causes of illness and deaths in Australia 2011, provides details of the behavioural risk factors associated with death and disease [2] (See Table 1).

Table 1. Proportion (%) of total burden attributable to each risk factor, 2011 [2]

Risk factor	Per cent of total DALY
Tobacco use	9.0
High body mass	5.5
Alcohol use	5.1
Physical inactivity	5.0
High blood pressure	4.9
High blood plasma glucose	2.7
High blood cholesterol	2.4

In the AIHW report [2], the effects of nutritional causes are documented individually, but they comprise about one third (31.5%) of the burden of disease. Physical activity is very important and interacts with nutrition and the overall environment to control overweight and obesity. For example, lifetime of moderate intensity physical activity reduces stress, cancer and obesity as well as cardiovascular risk. Physical activity is associated with a lower incidence

of many conditions including breast cancer, cardiovascular disease, type II diabetes mellitus, and a slower rate of cognitive decline [3, 4].

The evidence for community wide health promotion programs is substantial. Song and Giovannuchi [5] have demonstrated a substantial decline in deaths from several cancers in populations who are non-smokers, with a BMI of 17.5-27.5, moderate alcohol consumption and moderate intensity physical activity [5]. Community strategies for dietary change have reduced cardiovascular events and mortality [6, 7]. For the prevention of obesity the Centre for Disease Control (CDC) has identified the following community strategies: “1) strategies to promote the availability of affordable healthy food and beverages, 2) strategies to support healthy food and beverage choices, 3) a strategy to encourage breastfeeding, 4) strategies to encourage physical activity or limit sedentary activity among children and youth, 5) strategies to create safe communities that support physical activity.” [8]. In an editorial to mark World Health day 2016, there was an emphasis on the epidemic of the pandemic of type II Diabetes with the Lancet advocating a program of prevention [9].

Medication prevention

The first proposal for widespread medication of the community came from Wald and Law [10] who advocated the widespread use of a pill containing an antihypertensive, a statin, aspirin and folic acid for prevention [10]. Since then evidence has emerged that folate is ineffective in reducing cardiovascular events [11]. While there is some evidence for aspirin, we await the results of further large scale studies [12, 13].

The obvious question is why has there been so much effort to medicate the population without first trying a widely applied health promotion program? The evidence is that physical activity, good nutrition and other lifestyle interventions can achieve as much, but health promotion in Australia has never been adequately funded and environmental change to promote healthy lifestyles has been lacking, with the exception of tobacco control. Why not spend funds on health promotion as well as on medical services to prescribe the medication? Is there something magical about waving the magic wand of “a pill a day” compared to lifestyle advocacy? Perhaps society is enamoured with the way ‘THE PILL’ transformed society by changing reproductive health practises. But a total healthy lifestyle program that includes environmental change may achieve more in the longer term [14].

The editorial by Chow and Rodgers [15] concentrates on statins and anti-hypertensive drugs for the “lost” million Australians [15]. Their strategy is supported by the recently reported Hope Study that included men 55 years of age or older, women 65 years of age or older without cardiovascular disease and with at least one additional risk factor besides age, and women 60 years of age or older who had at least two such risk factors [16]. Death from cardio vascular disease or stroke was monitored for five years and was substantially lower in the combined therapy group (hazard ratio (HR) of 0.71; 95% CI 0.56, 0.90).

Treatment of an entire population, though it might reduce the population event rate, may induce side-effects in individuals who cannot benefit from the treatment because of a low

absolute risk [17]. No drugs are completely free of risk. Statins are associated with an increase in rates of diabetes and each week general practitioners see many patients with muscle aches from their statin [18]. In one of the classics of observational epidemiology an earlier statin (now withdrawn) was found to cause an increase in strokes [19]. No medication is without some side effects. In a review of why the 'polypill' for prevention has faded from view, Huffman [20] discusses the adverse events commonly experienced of elevated liver enzyme levels, cough, and muscle pain [20]. For hypertension, lowering of blood pressure is of considerable benefit [21] and can often be achieved by dietary and lifestyle changes. However often lifestyle changes are neglected and then drug treatment is initiated. In Australia the ACE inhibitors are the most popular anti-hypertensives prescribed and these frequently cause a dry hacking cough (probably 30-40%) which can cause distress to the patient until the cause is understood and the drug is changed. Ace inhibitors are often combined with a thiazide diuretic which increases diabetes rates so there is always a possibility the client will end up a coughing diabetic!

The emphasis on the 'polypill' has now shifted to secondary prevention as recommended in the MJA article [1]. There is good evidence that those who have had an adverse event, such as a heart attack should continue to take a pill(s) to control risk factors. But the MJA article implies universal screening of blood pressure and cholesterol and then administration of a pill for many. Why not a universal lifestyle prescription instead (or in addition) with adequate funding of health promotion services to ensure their uptake in the community?

There is more than the "missing million" of the MJA to write about. We think that the 'missing millions (of dollars)' that have been cut from prevention in Australia in the last decade also has significant ramifications for the health of Australians [22, 23]. Health promotion workforce and programs have been cut across Australia [3, 24]. Epidemiologists have diverted their energy to research on queuing theory to optimise waiting lists for surgery while surveillance at the primary health level has been reduced [22]

The cuts to prevention have diverted resources towards treatment options resulting in a short term oriented hospital and health policy. In Australia, we need a commitment by all political parties to health promotion and prevention that will result in the continuing improvement in our health status. Yes, popping a pill may be a part of the answer, but let us also regain and improve true prevention.

The question for our society to decide is whether we want to promote 'pill popping' or a healthy lifestyle. The advantage of living a healthy lifestyle is that it can reduce the risks of a cardiovascular event as much as a pill. At the same time it has no side effects but many other advantages. Lifestyle change sometimes involves complex and difficult choices as the campaign against tobacco has shown. While there is much that can be done now, long term lifestyle change to promote health will involve such complex areas as city planning to involve more activity and the control of fast food advertising and the availability of healthy food choices [14].

Australia has the options before it to either proceed down the path of personalised medicine, potentially a nation of pill poppers or to embrace a healthy lifestyle for the whole population. In an era when expenditure on prevention is declining in contrast to therapeutic medicine and its spinoff “the polypill” the debate that needs to be held in Australia is about the role of health promotion and lifestyle advocacy can play. Of course it is not an “either or debate” as medications have a legitimate role to play when lifestyle change is not enough. This journal is committed to promoting a larger role for health promotion in Australia. Evidence suggests that it is a cost effective way of improving health while bringing a better life to Australians.

References

1. Chow CK, Rodgers A. Lost in translation: the gap between what we know and what we do about cardiovascular disease. Med J Aust. 2016 May 2;204(8):291-2.
2. Australian Institute of Health and Welfare. Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011. page 57. Canberra: AIHW; 2016.
3. Corbi G, Conti V, Filippelli A, Di Costanzo A, Ferrara N. The Role Of Physical Activity On The Prevention Of Cognitive Impairment. Transl Med UniSa. 2015 Dec;13:42-6.
4. Si S, Boyle T, Heyworth J, Glass DC, Saunders C, Fritschi L. Lifetime physical activity and risk of breast cancer in pre-and post-menopausal women. Breast Cancer Res Treat. 2015 Jul;152(2):449-62.
5. Song M, Giovannucci E. Preventable Incidence and Mortality of Carcinoma Associated With Lifestyle Factors Among White Adults in the United States. JAMA Oncol. 2016 May 19.
6. Estruch R, Ros E, Salas-Salvado J, Covas MI, Corella D, Aros F, et al. Primary prevention of cardiovascular disease with a Mediterranean diet. N Engl J Med. 2013 Apr 4;368(14):1279-90.
7. Puska P. From Framingham to North Karelia: from descriptive epidemiology to public health action. Prog Cardiovasc Dis. 2010 Jul-Aug;53(1):15-20.
8. Khan LK, Sobush K, Keener D, Goodman K, Lowry A, Kakietek J, et al. Recommended community strategies and measurements to prevent obesity in the United States. MMWR Recomm Rep. 2009 Jul 24;58(RR-7):1-26.
9. Beat diabetes: an urgent call for global action. Lancet. 2016 Apr 9;387(10027):1483.
10. Wald NJ, Law MR. A strategy to reduce cardiovascular disease by more than 80%. British Medical Journal. 2003 Jun;326(7404):1419-23.
11. Marti-Carvajal AJ, Sola I, Lathyris D, Salanti G. Homocysteine lowering interventions for preventing cardiovascular events. Cochrane Database Syst Rev. 2009(4):CD006612.
12. Kunutsor SK, Seidu S, Khunti K. Aspirin for primary prevention of cardiovascular and all-cause mortality events in diabetes: updated meta-analysis of randomized controlled trials. Diabet Med. 2016 Apr 17.
13. Bibbins-Domingo K, Force USPST. Aspirin Use for the Primary Prevention of Cardiovascular Disease and Colorectal Cancer: U.S. Preventive Services Task Force Recommendation Statement. Ann Intern Med. 2016 Apr 12.
14. Jancey J, Barnett L, Smith J, Binns C, Howat P. We need a comprehensive approach to health promotion. Health Promotion Journal of Australia. 2016;27(1):1-3.
15. Chow C, Rodgers A. Lost in translation: the gap between what we know and what we do about cardiovascular disease. Med J Aust. 2016 Feb 15;204(8):292-3.
16. Yusuf S, Lonn E, Pais P, Bosch J, Lopez-Jaramillo P, Zhu J, et al. Blood-Pressure and Cholesterol Lowering in Persons without Cardiovascular Disease. New England Journal of Medicine. 2016 May;374(21):2032-43.

17. Cohn JN. Prevention of cardiovascular disease. Trends in Cardiovascular Medicine. 2015 Jul;25(5):436-42.
18. Anyanwagu U, Idris I, Donnelly R. Drug-Induced Diabetes Mellitus: Evidence for Statins and Other Drugs Affecting Glucose Metabolism. Clin Pharmacol Ther. 2016 Apr;99(4):390-400.
19. Thomas M, Mann J. Increased thrombotic vascular events after change of statin. Lancet. 1998 Dec 5;352(9143):1830-1.
20. Huffman MD. The Polypill: From Promise to Pragmatism. Plos Medicine. 2015 Aug;12(8).
21. Ettehad D, Emdin CA, Kiran A, Anderson SG, Callender T, Emberson J, et al. Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis. Lancet. 2016 Mar 5;387(10022):957-67.
22. Sydney University. Media statement - Closure of Beach Program after 18 years. http://sydney.edu.au/medicine/fmrc/media/BEACH-closure-2016-04.php accessed 16 June 2016 2016.
23. Smith J, Crawford G, Signal L. The case of national health promotion policy in Australia: Where to now? Health Promotion Journal of Australia. 2016;27(1):61-5.
24. Binns C, Howat P, Jancey J. Health promotion success in Australia and a note of warning. Health Promotion Journal of Australia. 2014;25(3):157-9.