

Why invest in a national public health program for stroke? An example using Australian data to estimate the potential benefits and cost implications

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Abstract

Objectives: Stroke is the world's second leading cause of death in people aged over 60 years. Approximately 50,000 strokes occur annually in Australia with numbers predicted to increase by about one third over 10-years. Our objectives were to assess the economic implications of a public health program for stroke by: (1) predicting what potential health-gains and cost-offsets could be achieved; and (2) determining the net level of annual investment that would offer value-for-money.

Methods: Lifetime costs and outcomes were calculated for additional cases that would benefit if 'current practice' was feasibly improved, estimated for one indicative year using: (i) local epidemiological data, coverage rates and costs; and (ii) pooled effect sizes from systematic reviews. Interventions: blood pressure lowering; warfarin for atrial fibrillation; increased access to stroke units; intravenous thrombolysis and aspirin for ischemic events; and carotid endarterectomy. Value-for-money threshold: AUD\$30,000/DALY recovered.

Results: Improved, prevention and management could prevent about 27,000 (38%) strokes in 2015. In present terms (2004), about 85,000 DALYs and AUD\$1.06 billion in lifetime cost-offsets could be recovered. The net level of annual warranted investment was AUD\$3.63 billion.

Conclusions: Primary prevention, in particular blood pressure lowering, was most effective. A public health program for stroke is warranted.

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Approximately 50,000 strokes occur annually in Australia. Recent figures indicate that stroke is the world's second leading cause of death in people aged more than 60 years [1]. As in many other countries, stroke is also a leading cause of disease burden in Australia [2] and creates a great economic burden. Currently, recurrent health expenditure for stroke is about 2% (AUD\$922 million) [3]. Lifetime costs of first-ever strokes in 1997 were estimated to be AUD\$1.3 billion [4]. Although effective prevention and treatment interventions exist to reduce this burden, access to such management is variable [5–7]. For example, access to dedicated stroke units in Australia is about 25%. The problem in Australia is compounded by an ageing population, which is expected to increase stroke numbers by one third over the next 10 years.

In a strategic effort to reduce the burden of stroke, the National Stroke Foundation (NSF) (the peak non-government charity advocating for stroke) launched 'strokesafeTM', a comprehensive 10-year program (<http://www.strokefoundation.com.au>). The aims of strokesafeTM are to ensure Australians achieve better risk factor management and receive better treatment for stroke, so that stroke related death and disability are minimised (Table 1). As a multifaceted program, strokesafeTM has many similarities to several successful existing Australian public health programs, such as

the national tobacco campaign to reduce tobacco use, shown to be both effective (e.g. behavior change) and cost-effective [8]. This provides 'parallel evidence' for the strategies and goals of strokesafeTM.

Providing a rational, policy argument for upfront investment in such a program is important, as benefits are unlikely to accrue in the short-term. Further, no previous attempt to have a coordinated and comprehensive program for stroke has existed, despite its significance to individuals, families and society. With this in mind, we sought to estimate the potential economic and policy implications of the program and determine the anticipated health benefits and any 'cost-offsets', which could be achieved. Cost-offsets are the estimated resources consumed in the diagnosis, treatment and care of preventable stroke events that could be available for other uses. We then used this information to determine the net level of annual investment that would offer value-for-money using an established value-for-money threshold.

1. Methods

Detailed data concerning the cost and burden of stroke in Australia are available, allowing extrapolation to future predicted populations to assess the effects

Table 1
Summary of the strokesafeTM campaign

Key priority	Target	Outcome	Strategy
An informed public	2010	All people aged 50 years and over understand stroke and how to prevent it	Mass media/public relations ^a
	2015	All Australians will know their blood pressure and have it treated where appropriate	National Help line Public education seminars ^a Educational resources ^a Lobbying and advocacy
A better start to the road to recovery	2015	100% of appropriate hospitals will have geographically localised Stroke Units	Lobbying government National Stroke Care Guidelines ^a Health professional education ^a
Improving life after stroke	2015	30,000 better equipped to deal with life 100,000 stroke survivors with better health-related quality of life	National Help Line Stroke survivor kit
			Improved services through peer support ^a Self-management program ^a

^a These strategies have been evaluated for use in stroke target populations in pilot programs or cross-sectional time series surveys conducted by the National Stroke Foundation (unpublished, Lalor 2005).

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