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Secondary prevention of cardiovascular disease

A possible model for Australian general practice

Heartwatch is a national program¹ in Irish general practice for the secondary prevention of cardiovascular disease. The program – a joint initiative of the Irish Department of Health and Children, the Irish College of General Practitioners, and the Irish Heart Foundation – has a number of key components, many of which may be suitable for adapting to Australian primary care.

A key recommendation from the Irish government's cardiovascular health strategy clearly states that: 'Secondary prevention for most patients with cardiovascular disease should be provided in the general practice setting'.² This is the goal of the Heartwatch program. Provision of adequate funding and logistical support for general practitioners and other primary care health providers is required to achieve the program's aims.

The first stage of the program commenced in late 2002. The initial cohort of patients was seen in March 2003 and since then the program has expanded to cover approximately one-fifth of Irish general practice, with over 56 000 patient visits recorded. This amounted to the involvement of 470 GPs from 325 practices.

Targeted patients were those who already had a myocardial infarct, coronary artery bypass graft, or percutaneous coronary treatment.

Aims and objectives

The overall aim of the program is to reduce mortality and morbidity due to cardiovascular disease.¹ It represented the first attempt by any country in the European Union (EU) to adopt a strategic approach to implement the European Society of Cardiology guidelines on secondary prevention.² It was particularly appropriate that this first attempt took place in Ireland – a country with one of the highest rates for cardiovascular mortality and morbidity in the EU.³ Other objectives of the program were to:

- examine the baseline levels of risk factors and therapeutic

interventions relevant to secondary prevention and their trends over time

- examine the processes involved in implementing the program, including the referral process and patient retention, and
- record the incidence of cardiovascular events in patients taking part in the program.¹

Patient visits

At the initial consultation, the main information obtained from patients is:

- past cardiovascular history
- known risk factors (patient report and medical record), and
- all cardiac events of clinical significance.

A full medical examination is also conducted. After initial registration, patients subsequently visit their GP every 3 months. Specific targets (*Table 1*) are established for all their major risk factors and these are monitored at subsequent visits (a comparison to Australian guidelines is included in *Table 1*). In addition, any therapeutic interventions are recorded, such as:

- alterations in medication
- smoking advice
- dietary advice, and
- physical activity advice.

Specific medication advice and alterations recorded include:

- aspirin, warfarin, other antiplatelet agents
- beta blockers
- angiotensin converting enzymes (ACE) inhibitors
- other antihypertension agents
- statins and other lipid lowering agents
- weight reducing agents, and
- smoking cessation medications.

Any referrals to allied health providers, including dietitians, those helping with smoking cessation, and physiotherapists

are also recorded. In addition, information about any specialist referrals (public or private), hospital clinic attendances, or medication adjustments since the last visit are documented.

Data entry and transfer

The development of the Heartwatch program coincided with the increased utilisation of computer records by GPs in Ireland. To date, 90% of the deidentified patient data collected has been returned electronically via a secure browser to an Independent National Data Centre (INDC). The remaining 10% use paper based returns. Each health board area has a general practice coordinator and nurse facilitator who help reduce data collection errors and omissions by ensuring good quality data entry compliance.

The quality of the information and communications technology (ICT) has been one of major the successes of the program.^{4,5} The ICT speeds up the data collection process in the practice, is capable of retaining and reusing stored information, and allows new information collected at the Heartwatch visits to be integrated with the existing electronic patient record. In addition, the adherence to the agreed management protocol is facilitated by ensuring all required actions take place at each visit, while at the same time advising GPs of specific

target levels for individual variables.

Feedback to GPs and primary care staff

A key feature of the Heartwatch program is its ability to analyse data received and provide feedback to practices.⁶ This information is accessible by all participating practices via the INDC website.

The website provides GPs with a set of predefined clinical reports on their patients. The reports include information on age and gender together with summary data for the practice, local health board region and the overall national picture. Information on medications used is also available on the website. As virtually all patients included in the program are likely to (and indeed should) be taking a range of medications including aspirin, beta blocker, ACE inhibitor, and statin, the value of this feedback is obvious.

Information on up to five variables can be obtained via the website and GPs can develop their own customised reports based on their own particular practice needs or interests.⁵ Data on age cohorts in the practice, patient smoking habits, LDL cholesterol, physical activity, and body mass index (BMI) can be readily accessed. In addition, improvements in systolic and diastolic blood pressure, total and LDL cholesterol, smoking cessation and in BMI

can all be tracked over a series of visits, allowing comparisons to be made with the overall practice population and national figures. The potential benefit of this trend analysis to research minded GPs, other primary care providers, and policy makers is clear.

Funding and GP remuneration

The national funding allocation to the program is 3 500 000 Euros per annum – approximately six million Australian dollars. The population of Ireland is roughly one-fifth of Australia's. A similar program to cover the general practice population at risk in Australia would approximate to 90 million Australian dollars per annum.

General practitioners in Ireland receive 45–50 Euros per standard consultation (AUD76–83). As part of the Heartwatch program, GPs also receive 50 Euros (AUD83) per 3 monthly visit, plus a bonus of 1250 Euros (AUD2083) when the first 15 patients have been recruited to the program. An additional payment of 50 Euros (AUD83) is made to each participating GP once the annual cycle of four visits has been completed and the data satisfactorily transferred to the INDC.

After the first year of the program, no further bonuses were payable and monitoring visits averaged just over two per annum. This resulted in considerable savings to the budget.

Table 1. Comparison of Irish Heartwatch patient targets and Australian Heart Foundation guidelines for patients with known ischaemic heart disease

Risk factor	Heartwatch patient targets	Australian Heart Foundation guidelines
Blood pressure	Systolic <140 mmHg Diastolic <90 mmHg	Aged >65 years: • systolic <140 mmHg • diastolic <90 mmHg Aged <65 years: • systolic <130 mmHg • diastolic <85 mmHg
Lipids	Total cholesterol <5 mmol/L HDL cholesterol >1 mmol/L LDL cholesterol <3 mmol/L Triglycerides <2 mmol/L	Total cholesterol <4 mmol/L HDL cholesterol >1 mmol/L LDL cholesterol <2.5 mmol/L Triglycerides <2 mmol/L
Smoking	0	0
Body mass index (BMI)	<25	<25
Waist circumference	Male <94 cm Female <80 cm	Male <94 cm Female <80 cm
Physical activity	210 minutes per week	150 minutes per week

Table 2. Percentage of patients outside target at first Heartwatch visit

Risk factor	Target	Outside target (%)
Systolic BP	<140	44.4
Diastolic BP	<90	15.1
Smoking males	0	15.9
Smoking females	0	15.3
Total cholesterol	<5 mmol/L	37.5
LDL cholesterol	<3 mmol/L	37.8
HDL cholesterol	>1 mmol/L	35.9
Triglycerides	<2 mmol/L	53.1
Body mass index	<25 kg/m ²	76.6
Waist circumference	<94 cm (male); <80 cm (female)	92.4
Physical activity	>210 mins/week	67.0

Table 3. Percentage of patients outside target for cohort of patients who attended all four visits in year one (n=2883)

Risk factor	Outside target (%) at visit one	Outside target (%) at visit four	Improvement (%)
Systolic BP	44.9	41.2	8.2
Diastolic BP	13.6	10.1	25.7
Total cholesterol	34.1	28.8	15.5
LDL cholesterol	33.0	29.4	10.9
Smoking	13.9	12.1	16.7

It remains to be seen whether Heartwatch can be expanded to cover the entire population at risk and remain sustainable from a national budgetary perspective. The fact that it was so enthusiastically received by participating Irish GPs reflects, in part, the adequacy of its funding.

Outcomes to date

Preliminary data on the Heartwatch program was published in December 2004.¹ It contained an analysis of data from the first year (up to the end of April 2004), at which stage a total of 10 041 had been enrolled.

A significant number of patients were found to have poorly controlled risk factors at their first visit (*Table 2*).

A cohort of 2883 patients who attended all four visits in year one was also analysed (*Table 3*). These patients were found to have significant improvements in certain risk factors (blood pressure, lipids and smoking cessation) but little or no benefit in the areas of BMI, waist circumference, and physical activity.

The Heartwatch program has been uniquely successful in Irish general practice. In Australia, where most of the secondary prevention

initiatives take place in the secondary or tertiary care sector, the GP's role is usually in reinforcing and maintaining these strategies rather than in initiating them.

The secondary prevention of cardiovascular disease is an ideal target area for a national coordinated approach in chronic disease management. The engagement of Irish GPs in the Heartwatch program has been critical to its success. Adequate funding and training, together with quality information technology support, helped gain the confidence of GPs and encouraged them to make better use of computers and the internet in their practices.⁴⁻⁷

While initial results are encouraging, not enough data are available to date to provide the statistical proof necessary to confirm its value and sustainability as a secondary prevention approach. Nevertheless, the side benefits to Irish general practice in terms of improved practice infrastructure and a top quality independent national data centre are already in place.

Australian applicability

The Irish Heartwatch program could be readily adapted to Australian primary care. It would

require a major policy shift by government to take the secondary prevention of cardiovascular disease out of secondary and tertiary hospitals and place it squarely in primary care. Such a bold move would require the necessary financial commitment to improve practice infrastructure, information technology, a central database, and financial incentives for GPs in order to achieve its potential.

It would also need a multifaceted approach involving nurses, dieticians, and other primary care practitioners in order to tackle the much more treatment resistant risk factor areas of waist circumference, BMI, and physical activity. The possibility of using a control group to evaluate outcomes over a specific period of time could add a further dimension to the program.

Conclusion

The template developed for the Heartwatch program could be modified to tackle the management of other chronic diseases such as diabetes, obesity, or asthma. The Irish experience has shown that there are additional side benefits to individual practices. Therefore, the ultimate benefits in terms of better use of health dollars and the emergence of genuine evidence based primary health care could be significant.

Conflict of interest: none declared.

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