

Register–recall systems: tools for chronic disease management in general practice

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Abstract

The Divisions Diabetes and Cardiovascular Disease Quality Improvement Project (DDCQIP) is a national project that aims to promote quality improvement initiatives among Divisions of General Practice. DDCQIP has investigated the growth of Division-based diabetes and cardiovascular disease register–recall systems and the role they play in promoting evidence-based structured care within general practice. In the period 2000–2002, an increase in the number of GPs using register–recall systems and the rise in the number of active registered patients have made it possible to monitor quality of care and health outcome indicators, and contributed to the growth of a Division-based population health program.

Keywords: *Diabetes; cardiovascular disease; general practice; registers.*

Introduction

General practice plays a key role in the Australian healthcare system, with some 90% of Australians visiting General Practitioners (GPs) each year (Pegram 2000). There has been increasing emphasis on improving the quality of care in general practice in the last few years (Marshall et al. 2002). Much of this has centred on chronic illnesses, which account for one in every 10 general practice encounters (Britt et al. 2001).

In 2001–02 the Australian Government introduced the National Integrated Diabetes Program. This initiative aimed to improve prevention, increase early diagnosis and promote better management of diabetes in general practice through the introduction of funding and support for systematic care, based on 12 key clinical indicators performed as part of an annual cycle of care (National Health Priorities and Quality 2003).

The UK Prospective Diabetes Study had demonstrated that good glycaemic control and management of high blood pressure can significantly improve clinical outcomes and reduce diabetes-related complications (Stratton et al. 2000; UK Prospective Diabetes Study Group 1998). These improvements in the quality of care and outcomes for people with diabetes are facilitated by a systematic approach within general practice. A major part of promoting such an approach is the use of a disease register and regular recall and review system, along with greater involvement of practice nurses and a system for auditing standards of care (Griffin 1998). This also includes intensive follow-up, and use of clinical management guidelines integrated with self-management support programs (Wagner 1998).

The Australian Divisions of General Practice play an important role in supporting GPs to improve their quality of care and in integrating general practice with other health services in the community. The establishment of a Division-based diabetes register is an important means of providing such support to the GP. These registers are based on participating GPs submitting data from consenting patients. These data are entered onto a Division-based computer register. The Division is then able to provide GPs with reminders to assist with patient recall, along with audit reports on the GPs' adherence to diabetes management guidelines. It has been demonstrated that GPs using Division-based diabetes registers are more likely to provide patient care that adhered to evidence-based guidelines than those who do not use the registers (Harris et al. 2002). The role of Divisions in promoting quality of care and population health in chronic disease areas, like diabetes and cardiovascular disease (CVD), is therefore of major importance.

Since the late 1990s, the development of Division-based register data, along with the establishment of national meta dataset standards within the Australian National Health Data Dictionary (Australian Institute of Health and Welfare 2001), have enabled Divisions and healthcare planners to monitor key aspects of the management of diabetes and CVD patients within general practice. In 1999, the first collation of data from Division registers was undertaken by the National Divisions Diabetes Data Collation Project, which included seven Divisions (Burns et al. 2000). This exercise was repeated among 22 Divisions in 2002 (National Divisions Diabetes Program 2004). Important national initiatives like HealthConnect are based on the standard national dataset (HealthConnect 2004). HealthConnect is not currently being used as a quality improvement tool at the Division level, where data are aggregated and compared to evidence-based guidelines and supported by educational activities.

The Divisions Diabetes and Cardiovascular disease Quality Improvement Project (DDCQIP) was an initiative of the National Divisions Diabetes Program, which was first established in 1996 to provide support to Divisions in establishing shared-care programs for diabetes. DDCQIP aimed to describe the quality of care and intermediate health outcomes for patients with diabetes and CVD managed in general practice. This was achieved through collection of qualitative and quantitative information from Divisions and the generation of reports that have allowed Divisions and their participating general practices to compare their performance to that of others. One of the elements of DDCQIP, reported in this article, is to investigate the uptake and growth of Division-based diabetes and CVD register–recall systems and how they are used by Divisions to monitor the quality of care by GPs.

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Methods

By using the 2000–2001 Annual Survey of Divisions (Modra & Kalucy 2002) supported by mail and/or

phone contact with Divisions across the country, we were able to identify 101 (83%) of 121 Divisions of General Practice that had a diabetes program, and 70 (58%) with a CVD program. A total of 107 Divisions had either a diabetes and/or CVD program. In October 2002 these Divisions were contacted by mail, inviting them to participate in the project in accordance with a policy framework established by the National Divisions Diabetes Program (Burns, Powell-Davies & Harris 2000). The policy framework ensured that participation was voluntary and that Division data would be used to contribute to quality improvement and feedback mechanisms.

In total 81 Divisions with either a diabetes (79) or CVD (39) program agreed to become involved in the project. Box 1 compares participating Divisions by State and Remote Rural Metropolitan Area (RRMA) index (Prometheus Information Pty Ltd 2002). Division involvement required diabetes and/or CVD program officers to respond to a survey designed to capture a broad range of information about their programs for the following periods: 01/07/99 – 30/06/00 (2000); 01/07/00 – 30/06/01 (2001); and 01/07/01 – 30/06/02 (2002). The survey included a qualitative, open-ended, free-format response section and a quantitative forced-choice section. Questions within the quantitative survey were grouped under the following headings: Division size and general practice population, program activities, Division-based register and recall systems, practice support, program management, target groups, education and quality improvement activities, and models of care. The data were analysed with SPSS Version 11 (SPSS 2001), using descriptive statistics for frequencies and distribution, the independent-samples *t*-test to compare means and the chi-square test for categorical data (Argyrous 2001).

Results

Spread of register–recall systems

From the survey of 81 participating Divisions, 31 had an electronic register–recall system for diabetes and eight for CVD. Box 2 shows the cumulative increase in the number of diabetes register and recall systems from two in 1993 to 31 in 2002. The largest increase of diabetes systems in any one year (from 10 to 21) occurred in 1998. Register–recall CVD systems have also increased over the years, from two in 1996 to six in 1999, seven in 2000, and eight in 2002.

For Division diabetes registers, 71% (22/31) used the CARDIAB[®]™ database developed by the CARDIAB[®]™ Alliance (a not-for-profit consortium) to provide register–recall functions as well as feedback to GPs of clinical audit reports on quality of care and health outcomes (CARDIAB 2003). In addition to the 22 CARDIAB[®]™ registers, 23% (7/31) of registers were locally developed and a further 6% (2/31) were run in association with local pathology providers.

Active register patients and GPs

Ninety percent (28/31) of Divisions with diabetes registers were able to provide data on the number of GPs using the Division register for the period ending 30 June 2002. Over the three-year period there was an increase in the number of GPs registering diabetes

1: Participation rates and Divisions with diabetes and/or CVD programs, compared by state and RRMA categorisation

State	RRMA categorisation	% eligible Divisions involved in DDCQIP
NSW	Metro	84% (16/19)
	Rural	80% (12/15)
Victoria	Metro	89% (16/18)
	Rural	56% (5/9)
Queensland	Metro	86% (6/7)
	Rural	57% (4/7)
South Australia	Metro	100% (5/5)
	Rural	50% (4/8)
Western Australia	Metro	80% (4/5)
	Rural	63% (5/8)
Tasmania	Metro	N/A* (0/0)
	Rural	100% (3/3)
Northern Territory	Metro	N/A* (0/0)
	Rural	50% (1/2)
ACT	Metro	0% (0/1)
	Rural	N/A* (0/0)
Total	Metro	85% (47/55)
	Rural	65% (34/52)

* N/A – Not Applicable – no eligible Divisions in this area

patients, from 908 in 2000 to 1046 in 2001, and 1318 in 2002. The mean number of GPs using diabetes registers per Division increased from 39 in 2000 to 44 in 2001 and 47 in 2002.

Most Divisions with diabetes registers were able to quantify the number of patients with diabetes on their registers. In 2000, 25 Divisions reported 11,074 registered patients, a mean of 443 patients per Division. This increased to 15,680 patients from 26 Divisions and a mean of 603 in 2001; and 25,175 from 29 Divisions and a mean of 868 in 2002. Box 3 shows that there was a (non-significant) rise in the mean ratio of GPs using diabetes registers compared to all GPs in the Division, from 42% in 2000 to 52% in 2002.

Quality of care and population health monitoring

Forty-one Divisions with a diabetes program and 18 with a CVD program reported that de-identified audit results were made available to one or more of the following: general public, practitioners within practices, practitioners in different practices, practices within Divisions, and the Division Board/Executive. Box 4 shows that Divisions with a diabetes register–recall system (n=31) were significantly more likely to provide de-identified results to one or more of these stakeholders than those without register–recall systems. For example, 58.1% of Divisions with registers provided results to their Division Board/Executive, compared to 16.7% of Divisions without a register.

Many Divisions with diabetes register–recall systems reported that their diabetes program focused on particular population groups (often depending on location and Division priorities). Box 5 shows that these

included Aboriginal and Torres Strait Islander peoples, people from a non-English-speaking background, youth, older persons and lower socioeconomic groups. There was also a strong focus within programs on important risk factors such as smoking, nutrition, alcohol misuse and physical activity. When these figures are compared with Divisions without diabetes registers, they showed that these Divisions had programs that concentrated more on population groups. This finding was significant for the areas of youth, older persons and lower socioeconomic groups.

Discussion

This study draws attention to the existence of electronic register-recall systems within Divisions, and their growth since 1999, when Divisions were last surveyed by the NDDP (Burns, Powell-Davies & Harris 2000). This is particularly important in the light of evidence showing that register-recall systems, particularly for chronic diseases such as diabetes, are

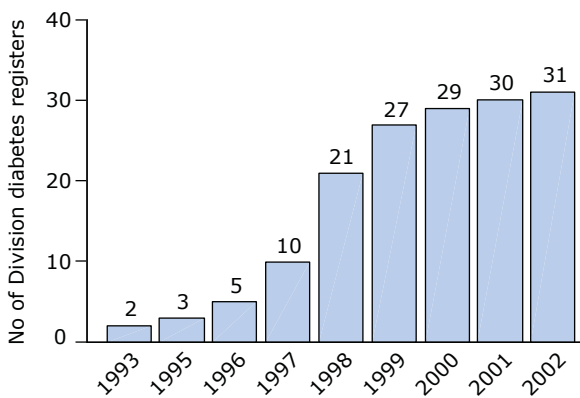
important facilitators for structured evidence-based care (Weingarten et al. 2002). They are also a potentially powerful tool for Divisions to use in promoting improved population health, as recommended by the report of the review of the role of Divisions of General Practice (Commonwealth Department of Health and Aged Care 2003).

The development of register-recall systems in Australian general practice was predicated by the development of a minimum data set – the General Practice subset of the National Diabetes Outcomes Quality Review Initiative (NDOQRIN) minimum data set. NDOQRIN was developed by the National Diabetes Data Working Group (NDDWG) and is now recognised as the diabetes clinical meta dataset in Version 12 of the Australian National Health Data Dictionary (Australian Institute of Health and Welfare 2001; National Health Data Committee 2003). There has also been a corresponding development of a primary care cardiovascular disease minimum data set by the Cardiovascular Data Working Group (CVData WG) under the auspices of the National Heart Foundation.

It has been postulated that the increase in the number and coverage of register-recall systems may be attributed to the stimulus provided by the National Integrated Diabetes Program, established in November 2001 with the introduction of incentive payments to practices for having a disease register to help support best-practice care, and to GPs for the completion of an annual cycle of care in diabetes (Commonwealth Department of Health and Aged Care 2004; Georgiou et al. 2004). While observational data support this hypothesis, causation will be difficult to establish because of the system-wide nature of the change and the lack of a sufficient amount of rigorous baseline and post-intervention data.

This study shows that Divisions are making use of the data provided by their registers. This is indicated by figures revealing that Divisions with registers are more likely to feed clinical audit data back (generally at regular quarterly intervals) to practices and to their Division Boards or Executive. These data can include audit reports on the GP’s adherence to diabetes or CVD management guidelines, and can be used to help set priorities and monitor population health. This is particularly important in the light of recent moves by the Joint Advisory Group on General Practice and Population Health to increase the collaboration be-

2: Cumulative number of Division diabetes register-recall systems



3: Proportion of GPs contributing data to Division diabetes registers for 2000-2002

Year	Mean 95 % Confidence Interval
2000	42.46 (25.27 – 59.64)
2001	48.29 (31.07 – 65.52)
2002	51.71 (35.08 – 68.36)

4: The percentage of Divisions making clinical audit data available to different groups, by Divisions with and without registers

Groups	Divisions with diabetes registers (n=31)	Divisions without diabetes registers (n=48)	χ ² (p) of comparison
General public	3.2% (1)	0	
Practitioners within same practices	61.3% (19)	22.9% (11)	11.8 (p<0.005)
Practitioners in different practices	35.5% (11)	10.4% (5)	7.3 (p<0.05)
Practices with divisions	51.6% (16)	20.8% (10)	8.1 (p<0.005)
Division Board or Executive	58.1%(18)	16.7% (8)	14.6 (p<0.0005)

5: Groups targeted by Division Diabetes Programs using diabetes register–recall Systems

<u>Groups or Risk factors</u>	<u>Divisions with diabetes register % (n=31)</u>	<u>Divisions without diabetes register % (n=48)</u>	<u>χ^2 (p) of comparison</u>
Aboriginal and Torres Strait Island peoples	25.8% (8)	41.7% (20)	2.07 (p=0.15)
Non-English-speaking background population	22.6% (7)	35.4% (17)	1.47 (p=0.23)
Youth	6.5% (2)	31.3% (15)	6.86 (p<0.05)
Older persons	16.1% (5)	45.8% (22)	7.39 (p<0.05)
Lower socio-economic groups	12.9% (4)	37.5% (18)	5.67 (p<0.05)
Refugees	3.2% (1)	6.3% (3)	0.36 (p=0.55)
Smoking	58.1% (18)	47.9% (23)	0.78 (p=0.38)
Nutrition	71.% (22)	56.3% (27)	1.73 (p=0.19)
Alcohol	48.4% (15)	45.8% (22)	0.49 (p=0.82)
Physical activity	71.0% (22)	60.4% (29)	0.92 (p=0.34)

tween general practice and state health services in analysing and using data for needs assessment and improving service planning (Commonwealth Department of Health and Aged Care 2003).

There were differences between Divisions with and without registers in the targeting of particular population groups. This may reflect the limited capacity of Divisions to address many different priorities and the 'opportunity cost' involved. The targeting of population groups is likely to have been part of broader health service or health promotion programs targeting these groups rather than a specific focus of the diabetes program. By contrast, Divisions with registers may have chosen to target patients and practices with poor quality of care or outcomes irrespective of the population group to which they belong. This warrants further study.

Recent feedback from Divisions obtained since the completion of this study suggests that the growth of register–recall systems across Divisions over the period 2000–2002 has peaked and may now be declining (National Divisions Diabetes Program 2004). Some Divisions have been forced to relinquish their register–recall systems, reportedly because of the absence of a standard system for sending electronic messages from the practice to the Division. GPs are thus required to duplicate information they already have in the practice computer systems and the Division has to re-enter it. The sustainability of Division-based register–recall systems may therefore rely on a more functional and seamless way of transferring data from the general practice to the Division, underpinned by rigorous standards and a common terminology (Penn et al. 2004). These issues are among those that are high on the research agenda for government and general practice IT bodies (General Practice Computing Group 2004).

A number of different types of systems are now in use in practices, Divisions, Area Health Services, Diabetes Centres and Aboriginal Medical Service Centres. The systems that are used to manage diabetes vary widely and are often incompatible; moreover, there

are no standards for communication between them. There is an urgent need for standards and user-friendly systems for sending encrypted messages between general practices and other services.

Conclusion

There is substantial evidence showing that register–recall systems can be an important tool in providing structured diabetes care using evidence-based guidelines. They have a major contribution to make in improving quality of care as well as facilitating population health monitoring, service planning and provision. The challenge is to establish and implement secure electronic standards and user-friendly messaging systems to ensure that the gains that have been made in terms of monitoring the provision of structured care for chronic disease utilising Division-based register–recall systems are not lost.

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