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### How population health data can help primary care services to improve population health: a rural case study

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### What is population health?

Population health can be defined as ‘the health outcomes of a group of individuals, including the distribution of such outcomes within the group’.<sup>1</sup>

This field of activity incorporates population-level examinations of health outcomes, determinants of health, and policies and interventions linking the two.<sup>1</sup>

A unique outcome from population health data is the identification of ‘sick populations’, where a high average level of disease risk in a population is directly related to the proportion of people at very high risk. In addition, population health data provides a greater understanding of the interrelationship between multiple determinants of health in affecting health outcomes.<sup>2</sup>

Despite such benefits, population health approaches to health care have been criticised for being almost exclusively quantitative and epidemiological in focus, and consequently lacking the context or aptitude to

translate population-level information to changes in clinical practice and health service delivery<sup>3</sup>. Using a rural Australian case study, this paper illustrates how population health data can in fact stimulate important changes to general practice and primary health care.

### Greater Health population health surveys

During 2004–06 the Greater Green Triangle University Department of Rural Health (aka *Greater Health*, a collaboration between Flinders University in South Australia and Deakin University in Victoria) undertook three population health surveys in rural southeastern South Australia and adjoining southwestern Victoria.<sup>4,5</sup> Based on the World Health Organization’s MONICA protocol<sup>6</sup> and the more recent European Health Risk Monitoring project<sup>7</sup>, these population-based surveys drew stratified random samples from local electoral rolls, and sought to examine the prevalence of chronic disease risk factors and related health behaviours among them. Both laboratory and non-laboratory tests, as well as self-completed patient surveys, were used to collect the data.

The surveys were undertaken following local and international consultation about the major health challenges to the region. Consultation occurred in two brainstorming days 3 months apart, in which local health professionals examined the available pool of epidemiological data. Divisions of General Practice participated in the analysis, leading to the setting of heart disease and diabetes as local priorities for intervention. A consensus was reached that such surveys were essential as part of a concerted effort to improve the health status of the region.

### Using population health data for general practice

The resulting research has given rise to a basic report and an ongoing series of peer-reviewed publications that present the results of this work (see Box 1). These publications demonstrate the high prevalence of chronic disease risk factors in the region, and the evidence–treatment gaps in their management. Such findings act to confirm the health priorities of the region; advocate for interventions to policymakers and service providers; and, importantly, provide baseline data against which the success of future population-level interventions could be measured.

## Box 1 Summary of published peer-review papers by topic

### *Overweight, obesity and metabolic syndrome*<sup>5</sup>

The prevalence of overweight and obesity combined was 74.1% (69.7–78.5) in males and 64.1% (59.5–68.7) in females. According to International Diabetes Federation criteria, the overall prevalence of metabolic syndrome was 31.8% (28.6–35.1). With only 30% of the population within the 'normal weight' range, urgent action is required at the highest level to change unhealthy lifestyle habits by improving diet, increasing physical activity and making our environments supportive of these objectives.

### *Hypertension*<sup>4</sup>

This study emphasises suboptimal detection and treatment of hypertension, especially in men, in rural Australia. This will have serious future consequences in terms of cardiovascular outcomes if left unaddressed. Overall, one-third of participants had hypertension and one-third of those were not aware of a previous diagnosis. Only half of those diagnosed were treated and half of the treated actually achieved blood pressure control.

### *Physical activity*<sup>20</sup>

One-fifth of adults in rural Australia were inactive, with few individuals engaged in daily physical activity at moderate to vigorous intensity to achieve health benefits. Leisure-time physical activity has the most potential for improvements to be made at a population level.

### *Psychosocial*<sup>9</sup>

A third of the rural population reported psychological distress, with the highest prevalence observed in middle-aged men and women. Thus, health professionals should attend not only to physical health, but also to mental health status, in this age group. It is also important to target prevention strategies to the 20% who reported moderate levels of psychological distress, in order to prevent the development of more serious conditions.

### *Metabolic syndrome and depression*<sup>18</sup>

Our data show an association between metabolic syndrome and the cognitive and affective components of depression in a rural population, with the prevalence of depression in individuals with metabolic syndrome being 50% higher. Based on the findings of this study, awareness of depressive symptoms as part of metabolic syndrome could be as important in clinical management as chronic diseases.

### *Smoking cessation*<sup>8</sup>

We found that the overall prevalence of smoking was 15% when adjusted, the rate decreasing with age. Those smokers in the 25–44 years age group were most likely to want to stop but were less likely to have received advice on smoking cessation than older smokers. This suggests a need for greater vigilance in proactively targeting younger smokers.

Benefits of this data to general practice and other primary care services are both direct and indirect. Published results give a direct insight into the health behaviours and co-morbidities associated with chronic diseases. This allows general practitioners (GPs) to engage in more comprehensive primary care screening tailored to individual patients. Clinically relevant findings, which can be used by GPs, include the following:

- > Young people are not given sufficient advice about smoking and may warrant more systematic screening by GPs.<sup>8</sup>
- > People in the age group 45–54 years are at the highest risk of depression.<sup>9</sup>
- > Most people with diet-related cardiovascular risk factors report low levels of dietary advice from GPs or other health professionals.<sup>10</sup>
- > The majority of patients with diagnosed hypertension are undertreated, with diagnosed men less likely to receive drug treatment or achieve blood pressure less than 140/90 mmHg.<sup>4</sup>
- > Almost all adults with diabetes or established cardiovascular disease have at least one suboptimal lipid parameter.<sup>11</sup>
- > Central obesity, an independent risk factor for diabetes and myocardial infarction, appears to be even more prevalent with the burgeoning obesity epidemic.<sup>5</sup>

## Public Health and General Practice

Based on the epidemiological data showing low identification rates and evidence–treatment gaps, there is a direct case for GPs to use the newer Medicare item numbers for chronic disease management. They allow GPs more consulting time, and they fund practice nurses to do screening and case management. They reimburse disease management plans and reviews, and also allow the patient access to a number of allied health professionals. Some of the commonly used item numbers for management of chronic diseases and chronic disease risk are discussed in Table 1. During patient consultation, population data can also help primary care practitioners by raising awareness of important issues such as:

- > potential comorbid conditions for certain patient groups
- > major evidence–treatment gaps that should be addressed, such as screening for depression in patients with diabetes and heart disease
- > the allocation of practice resources to meet the needs of local patients.

Indirectly, population-level efforts to reduce the average exposure to such chronic disease risk factors generate a disproportionate reduction in the number of people who are considered at high risk.<sup>2</sup> The obvious benefit to general practice from such efforts is to reduce excessive levels of demand on GP services stemming from epidemic levels of risk factors such as obesity, and allow GPs to focus more on high-risk individuals.

**Table 1:** Commonly used Medicare item numbers in chronic disease prevention, detection and management

Item number	Title	Description <sup>a</sup>	Eligibility
717	45-year-old health check	A one-off health check, with GPs encouraged to consider lifestyle and biochemical risk factors, and family history. Practice nurses and other health professionals can assist.	45–49-year-old patients at risk of chronic <sup>b</sup> condition(s)
713	Type 2 diabetes risk evaluation	Review of diabetes prevention activities for patients with a 'high risk' score identified by the Australian Type 2 Diabetes Risk Assessment Tool. Much of the work can be done by practice nurses.	High-risk diabetic patients aged 40–49 years
721– 731	Enhanced Primary Care (EPC) Chronic Disease Management (CDM)	Preparation or review of GP management plans (GPMPs); coordinating, implementing or reviewing team care arrangements (TCAs) with input from other professionals. Can involve other health professionals.	Patients with a chronic <sup>b</sup> or terminal medical condition
10997	Monitoring and support	Practice nurses and Aboriginal health workers provide monitoring and support services.	Patients with a GPMP or TCA
700 & 702	Health assessments for older persons	In-depth assessment containing medical, social, physical and psychological components. Information can be collected by, for example, practice nurses.	Older patients (75+ or, ATSI 55+)
710	Aboriginal and Torres Strait Islander (ATSI) adult health check	To facilitate early detection and intervention for common and treatable conditions that cause considerable morbidity and early mortality (e.g. circulatory, respiratory, endocrine conditions).	ATSI adults aged 15–54 years
900 & 903	Medication management reviews	Patient referred to accredited pharmacist for medication review and management plan for implementation by GP and community pharmacist.	
2517–2526 & 2620–2635	Management of diabetic patients	A number of items for various aspects of management and completion of the diabetes cycle of care. Much of the work can be done by practice nurses.	Patients with established diabetes mellitus
2710–2713	GP mental health plans	Early intervention, assessment and management in parallel with EPC and CDM items. Practice nurse can provide general assistance with development of plan.	Patients with mental disorders

<sup>a</sup> Further details see Medicare Benefits Schedule for further details <http://www.health.gov.au/internet/mbsonline/publishing.nsf/Content/Medicare-Benefits-Schedule-MBS-1>

<sup>b</sup> A chronic condition is a disease likely to go on for 6 months or more.

### Using population health data for specific conditions: obesity

Obesity was a primary focus of attention following the Greater Health surveys, which found that 68.9% of the adult population was considered either overweight (38.9%) or obese (30.0%).<sup>5</sup> In addition to improving public awareness of the problem through media releases and health forums, several projects were also initiated to complement existing state and federal initiatives.

Projects run directly through the University Department of Rural Health (UDRH) included *Food and Move*, designed to promote healthy eating and regular physical activity for young people in the secondary school setting.<sup>12</sup> The *Primary Health Care Research, Evaluation and Development* (PHC RED) program run through the UDRH was able to award research bursaries to local health and education practitioners so that capacity for addressing such issues at a service-delivery level was enhanced. Relevant PHC RED projects involved investigating the delivery of best practice obesity management through surveying GPs,<sup>13</sup> and identification of barriers to selling healthy food in school canteens.<sup>14</sup>

Local organisations were also able to use the risk factor information independently to advocate for action in the region. The Heart of Corangamite is a network of community agencies and health promotion practitioners in one of the surveyed regions. The network was formed to combine resources and prioritise strategies to respond to the *Greater Health* survey findings. Its key objectives include: increasing consumption of fruit, vegetables, water and low-fat dairy products; and increasing opportunities for active transport and access to established sporting and recreation clubs and organisations in the region. Meanwhile, a *Healthy Active Regional Transport* program was funded in the Limestone Coast area to promote cycling in rural areas, using survey data to establish the need for physical activity interventions.

### Summary

Population health data from the Greater Health survey has helped to inform future directions for primary care in the region. Several new models of care aimed at supporting general practice with high-risk patients have been examined. Initiatives include:

- > the development of a diabetes prevention program that has now been adopted throughout Victoria<sup>15</sup>
- > managed clinical networks, with clinical pathways for co-morbid depression in acute coronary syndrome<sup>16,17</sup>
- > collaborative care for patients with diabetes, coronary heart disease or both<sup>18</sup>
- > improving attendance at cardiac rehabilitation<sup>19</sup>
- > community pharmacy support for general practice in the prevention of cardiovascular disease (see <http://www.greaterhealth.org/research> for details).

A close alignment of activities within *Greater Health* between public health, health services and workforce programs ensures that the momentum for dissemination of findings and addressing evidence-treatment gaps was maintained. Formal and informal networks across general practice and other health and related professions further facilitated dissemination.

Improved management of chronic diseases, including cardiovascular disease and diabetes, and their risk factors requires a change in the way GPs approach their work, particularly patient consultations. It requires them to:

- > see their patients as belonging to populations at risk
- > use available MBS item numbers to fund identification, review and management plans for at-risk patients to measure the risk factors
- > ensure that treatment is directed to the targets set in national guidelines.

It requires teamwork, particularly delegating screening and case management tasks to practice nurses, and arranging administrative staff to maintain disease registers for call, recall and clinical auditing.

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