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How do we compare?

Applying UK pay for performance indicators to an Australian general practice

Background
United Kingdom general practitioners receive payment based on their performance in multiple clinical indicators. We set out to apply the same indicators in an Australian general practice to benchmark our performance and to see how much work was required to obtain the data.

Methods
Clinical indicators for the 2008–2009 UK Quality and Outcomes Framework (QOF) cycle were examined and achievement levels measured in a large rural Australian general practice, mainly by computer searching of the clinical database.

Results
Outcome measures were obtainable for 79 out of 80 indicators. Manual perusal of computer records was required for 16 indicators. Data collection takes approximately 130 hours. The Australian general practice achieved 66% of available pay for performance points compared to the UK average of 97%.

Discussion
United Kingdom QOF clinical data is obtainable relatively easily in a well computerised Australian rural general practice. The exercise identified significant areas in which clinical performance could be improved.

Keywords: health care quality assessment; clinical audit; health policy; health care economics

In 2004, as an attempt to improve and measure the quality of primary care and as part of a new contract with general practitioners, the United Kingdom government introduced a voluntary pay for performance scheme for general practices called the 'Quality and Outcomes Framework' (QOF). This provided a potential extra 25% income for GPs and has now been almost universally adopted.

The 2008–2009 scheme comprises 138 separate indicators outlining targets within chronic disease management, practice organisation and patient experiences of primary health care. Evidence is emerging that this approach accelerated existing general practice care for key conditions specified (although the rate of improvement has now peaked).[1] Such a model might be worthy of consideration in the health systems of other countries.

The Australian health system shares with the UK a structure of GP led primary care responsible for much of chronic disease management. There are nevertheless significant organisational differences which make it harder to measure the quality of chronic disease management in Australia. In the UK all patients are registered with a single general practice of their choice, whereas Australians are free to choose at any time a doctor willing to see them. Parallel to this is the existence in the UK of a single general practice record (which follows the patient if they change the practice in which they are registered), whereas each practice involved in the care of an Australian patient maintains a separate unlinked record.

This study explores the potential for a large, computerised, rural Australian general practice (Hawkins Clinic in Mount Gambier, South Australia) to collect clinical data used for the UK QOF clinical indicators (80 categories) for the years 2008–2009.

Methods

Setting

Hawkins Clinic is currently a 17 doctor (14 full time, three part time) practice with 16 314 patients. Mount Gambier is the second largest town in South Australia (population approximately 25 000) about 5 hours drive from Adelaide. The practice is paperless and uses Best Practice clinical software. Clinical summaries use the software coded disease index wherever possible. Incoming pathology is entered electronically and is automatically coded.

Defining the practice population

For the purposes of this project a patient of the practice was defined as a patient in whom there exist three separate progress note entries in the records in the 2 years between 1 April 2007 and 31 March 2009.

Obtaining Hawkins Clinic data for each clinical indicator

The UK clinical indicators for the years 2008–2009 were chosen.[2] A 'snapshot' of practice data on 31 March 2009 was used to compare with UK practices who all report on this same date. The Best Practice clinical software search tool was modified by inserting specifically designed structured query language (SQL) directly into the search pane. This made it possible to construct relevant disease registries and assess performance precisely for most of the clinical indicators. For some indicators it was necessary to manually check a random sample of clinical records.

Analysis

Disease prevalences for Hawkins Clinic were compared to UK national averages. Performance of Hawkins Clinic for each clinical indicator was

determined by reference to the UK QOF points allocation system. For each clinical indicator (apart from those simply requiring the existence of a disease register) points are awarded in proportion to the number of patients who fulfill the criteria of that clinical indicator. Some indicators are given greater importance by the awarding of more points. For most indicators maximum points are awarded once 80 or 90% of patients have achieved the criteria. There are defined circumstances where a patient refuses or is unsuitable for the clinical indicator and is therefore excluded from the count. The average UK 'exception rate' across all practices is published for each indicator.[3] We calculated our percentage achievement of points for each UK QOF indicator applying the UK exception rate to each indicator to make the benchmarking exercise more meaningful (the mean adjustment across all indicators was 5.26%). *Figure 1* illustrates how QOF points are awarded for blood pressure control in patients with type 2 diabetes. In this example practices start gaining points when 40% of their patients fulfill the criteria, reaching maximum points once 60% or more have fulfilled the criteria. By performing these calculations for each of the clinical indicators it was possible to derive the financial reward that Hawkins would have received in the UK.

All 80 UK clinical indicators were examined in the Australian GP context. Apart from an adjustment for the southern hemisphere winter for flu immunisation items, clinical entities matched exactly for all except four indicators (*Table 1*).

Flinders University Social and Behavioural Research Ethics Committee approved the study.

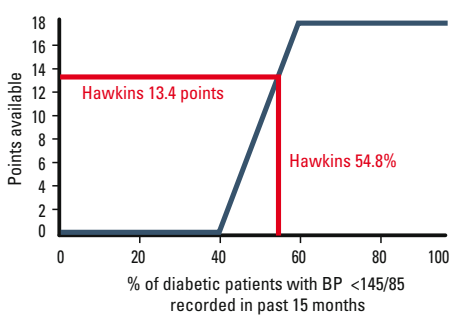

Figure 1. Calculation of UK QOF points for DM12 indicator

Table 1. Clinical indicators changed for use in Hawkins Clinic

UK QOF indicator	Hawkins Clinic approximation
Practice has a register of palliative care patients	Local palliative care service register of practice patients
Recorded multidisciplinary case reviews of palliative care patients	Weekly meetings between palliative care service and GPs
Annual review including routine health promotion of patients with psychotic or bipolar disorders	Up-to-date with RACGP preventive screening guidelines (eg. the 'red book')[4]
Recording of follow up contact for patients with psychotic or bipolar disorders failing to attend annual health promotion visit	No Australian equivalent (opportunistic health promotion instead of planned annual visit)

Table 2. Disease register prevalence as percentage of population (Hawkins Clinic and UK data)

Register	Hawkins Clinic	UK 2007–2008
Coronary heart disease (CHD)	4.1	3.5
Heart failure (HF)	0.81	0.8
Stroke and transient ischaemic attack (STROKE)	1.8	1.6
Hypertension (BP)	15	12.8
Diabetes mellitus (DM)	6.5	3.9
Chronic obstructive pulmonary disease (COPD)	1.5	1.5
Epilepsy (EPILEPSY)	0.92	0.6
Hypothyroid (THYROID)	2.3	2.7
Cancer (CANCER)	0.59	1.1
Palliative care (PC)	0.048	0.1
Mental health (MH)*	1.1	0.7
Asthma (ASTHMA)	6.5	5.7
Dementia (DEM)	0.41	0.4
Chronic kidney disease (CKD)	2.8	2.9
Atrial fibrillation (AF)	1.6	1.3
Obesity (OB)	3.4	7.6
Learning disabilities (LD)	0.22	0.3

* Refers to schizophrenia and other psychotic illness and bipolar disorder

Results

Disease prevalence

Disease prevalence data was found to be similar to average UK figures (*Table 2*) for all conditions with the exception of diabetes, palliative care and obesity.

Clinical indicator performance

For each indicator *Table 3* has a brief description. The next two columns show the percentage of Hawkins Clinic patients fulfilling the indicator criterion for the relevant disease and the percentage required to achieve all of the UK QOF points for that indicator. The final column shows what proportion of available points Hawkins Clinic achieved, eg. for the DM12 indicator of *Figure 1*, Hawkins Clinic attained 54.8% (base rate of 48.3% with addition of 7.5% UK exception rate) which achieves 13.4 of the 18 points available, ie. 74%).

Hawkins Clinic achieved more than 95% of available points for about half the indicators but in the remainder there were less satisfactory achievements which are discussed below. In total, Hawkins Clinic achieved 66% of the available 650 clinical UK QOF points.

Table 3. QOF clinical indicator achievements (Hawkins Clinic and UK data)

Indicator	Description	Hawkins Clinic % of patients with each disease who meet QOF criterion	UK minimum % required to be awarded full QOF points	Hawkins Clinic QOF points awarded (% of total available)[#]
Coronary heart disease				
CHD 1	Register			100
CHD 2	ETT in angina diagnosed after 1 April 2009	89.0	90	100
CHD 5	BP measured	88.1	90	99
CHD 6	BP <=150/90 mmHg	70.1	70	100
CHD 7	Cholesterol measured	87.4	90	100
CHD 8	Cholesterol <=5 mmol/L	75.8	70	100
CHD 9	On anti-platelet medication	89.0	90	100
CHD 10	On B-blocker medication	50.6	60	100
CHD 11	Patients with myocardial infarction diagnosed after 1 April 2003 on ACEI medication	83.3	80	100
CHD 12	Influenza immunisation	71.3	90	89
Chronic heart failure				
HF 1	Register			100
HF 2	Echo in patients with HF diagnosed after 1 April 2006	68.3	90	78
HF 3	On ACEI medication	68.9	80	93
Stroke				
STROKE 1	Register			100
STROKE 13	CT in diagnosis after 1 April 2008	79.2	80	100
STROKE 5	BP measured	78.9	90	80
STROKE 6	BP <=150/90 mmHg	55.4	70	68
STROKE 7	Cholesterol measured	83.9	90	100
STROKE 8	Cholesterol <=5 mmol/L	62.4	60	100
STROKE 12	On antiplatelet medication	83.3	90	100
STROKE 10	Influenza immunisation	71.5	85	100
Hypertension				
BP 1	Register			100
BP 2	BP measured in previous 9 months	78.4	90	77
BP 3	BP <150/90 mmHg in previous 9 months	57.7	70	59
Diabetes mellitus				
DM 19	Register			100
DM 2	Body mass index measured	51.3	90	30
DM 5	HBA1C measured	86.0	90	97
DM 20	HBA1C <=7.5	65.3	50	100
DM 7	HBA1C <=10.0	81.8	90	95
DM 21	Retinal screen performed	72.6	90	80
DM 9	Peripheral pulses checked	60.4	90	53
DM 10	Neuropathy testing	60.4	90	53
DM 11	BP measured	83.5	90	90
DM 12	BP <145/85 mmHg	48.3	60	74
DM 13	Microalbuminuria checked	60.6	90	53
DM 22	eGFR measured	86.7	90	97
DM 15	On ACEI medication if albuminuria present	81.0	80	100

Table 3. QOF clinical indicator achievements (Hawkins Clinic and UK data) (continued)				
DM 16	Cholesterol measured	89.4	70	100
DM 17	Cholesterol <5 mmHg	73.7	70	100
DM 18	Influenza immunisation	54.7	85	66.7
Chronic obstructive pulmonary disease				
COPD 1	Register			100
COPD 12	Spirometry in new diagnosis	63.6	80	40
COPD 10	FEV1 measured	18.1	70	0
COPD 11	Inhaler technique checked	4.4	90	0
COPD 8	Influenza immunisation	68.7	85	93.3
Epilepsy				
EPILEPSY 5	Register			100
EPILEPSY 6	Seizure record	65.3	90	58
EPILEPSY 7	Review	75.5	90	78
EPILEPSY 8	Seizure free for 12 months recorded	43.9	70	66.7
Hypothyroidism				
THYROID 1	Register			100
THYROID 2	Thyroid function measured	80.7	90	82
Cancer (excludes nonmelanotic skin cancer)				
CANCER 1	Register			100
CANCER 3	Review of new diagnosis in previous 18 months	81.6	90	90
Palliative care				
PC 3	Register			100
PC 2	3 monthly multidisciplinary review meetings			100
Schizophrenia, psychosis and bipolar disorder				
MH 8	Register			100
MH 9	Health promotion performed	28.4	90	5.2
MH 4	Lithium patients – TSH measured	79.2	90	80
MH 5	Correct lithium level in previous 6 months	54.2	90	45
MH 6	Care plan in place	14.6	50	18.3
MH 7	Follow up if not attended health promotion	0		0
Asthma				
ASTHMA 1	Register			100
ASTHMA 8	Reversibility measure in diagnosis after 1 April 2006	44.2	80	40
ASTHMA 3	Smoking status age 14–19 years	42.2	80	13
ASTHMA 6	Review	20.0	70	0
Dementia				
DEM 1	Register			100
DEM 2	Review	83.6	60	100
Depression				
DEP 1	DM/CHD depression screen	19.2	90	0
DEP 2	Severity tool in new diagnosis in previous 12 months	38.7	90	24.4
Chronic kidney disease* (stage 3–5 CKD)				
CKD 1	Register			100
CKD 2	BP measured	88.4	90	98
CKD 3	BP <140/85 mmHg	50.3	70	72.7
CKD 4	Patients with proteinuria on ACEI medication	100	80	100

Table 3. QOF clinical indicator achievements (Hawkins Clinic and UK data) (continued)

Atrial fibrillation				
AF 1	Register			100
AF 4	ECG in new diagnosis in previous 12 months	100	90	100
AF 3	On antiplatelet medication or warfarin	88	90	100
Obesity				
OB 1	Register			100
Learning disability				
LD	Register			100
Smoking in patients at high risk**				
SMOKING 3	Smoking status recorded	57.6	90	35
SMOKING 4	Cessation advice offered	39.1	90	0

Notes

Most indicators require the data to be recorded in the previous 15 months

'Register' means that the practice can produce a register of patients with the relevant condition

Calculated after addition of indicator specific UK exception rate

* CKD refers to US National Kidney Foundation: stage 3–5 chronic kidney disease (essentially patients with two eGFRs of <60 measured at least 3 months apart)

** Smoking refers to patients considered high risk, a combination of the registers for CHD, STROKE, BP, DM, COPD, ASTHMA and MH

Other abbreviations

ETT = exercise tolerance test; ACEI = angiotensin converting enzyme inhibitor or angiotensin receptor 2 blockers; Echo = echocardiogram; HBA1C = glycosylated haemoglobin; eGFR = electronic glomerular filtration rate; TSH = thyroid stimulating hormone; ECG = electrocardiogram

Workload

For those indicators that required manual perusal of the electronic record (for the most part by a suitably trained clerical officer of the practice) the estimated time required was 112 hours (*Table 4*). To obtain the rest of the data (and generate the lists of patients for the manual record check above) required the use of 89 separate searches using the Best Practice search engine but with extensive SQL code addition. Designing the searches was a time consuming exercise but once formulated the SQL code can be used in any practice using Best Practice clinical software. Running the searches and calculating the data took about 16 hours.

Discussion

This project demonstrates that it is possible to collect the UK QOF data in an Australian practice.

The practice population definition provided a reasonable method for obtaining disease prevalence data and for obtaining the denominator for many of the activity targets outlined in UK QOF. The actual practice population (people who would regard themselves as patients of the practice) might differ – some infrequent attendees will have been missed while others who have subsequently moved away will have been included. Most QOF targets relate to the proportion of patients in a particular disease register who are receiving recommended care so there is no absolute requirement to follow the UK example of registering patients with only one practice.

The population definition probably works well for a large general practice in a small town, or a one practice town, but it might not work well in urban areas where patients have a greater tendency to use more than one general practice.

The remarkable similarity of Hawkins Clinic and UK prevalence data is an encouraging vindication of the methodology for the most part. The higher rate of diabetes in our population was a surprise. The obesity rate (about half that in the UK) is likely to be explained by under recording.

In the UK there was a significant lead in time before the first QOF targets were assessed. Practices could adjust their clinical and organisational systems well in advance to maximise their performance from the outset of the scheme (eg. by making sure relevant clinical measurements and data had been recently recorded and by identifying patients eligible for exception reporting). It is hardly surprising therefore that an unprepared 'snapshot' of an Australian practice fails to achieve anything like the levels of achievement of UK practices (66% for Hawkins Clinic compared to the UK average of 97%).

Implications for Hawkins Clinic

Aside from the UK QOF comparison this work has been valuable in highlighting some aspects of chronic disease management where Hawkins Clinic should improve. Blood pressure targets that are by no means stringent are only met for about 50% of our stroke patients (<=150/90), hypertensive patients (<=150/90), diabetic patients (<=145/85), and chronic kidney disease patients (<=140/85). For patients with diabetes, routine checks of retina, feet and microalbuminuria were disappointingly low (60%) despite being part of the Australian Diabetes Cycle of Care Medicare Australia protocol. These results indicate to us the potential benefits of protocol driven chronic disease management with the assistance of our practice nurses. Other areas for similar attention include:

- annual spirometry for asthma and chronic obstructive airways disease
- recording of seizure frequency in epilepsy (which might increase the percentage of identified seizure free epileptic patients)
- recording of smoking advice and cessation
- formal health promotion checks for patients with psychotic or bipolar disorders
- annual depression screening of patients with diabetes or coronary heart disease
- use of severity tool for new diagnoses of depression.

Table 4. Clerical time for data collection for indicators that required manual search of records

Indicators	Total Hawkins Clinic patients	Sample	Time to examine sample (hours)	Estimate for all notes to be examined (hours)
CHD 2	73	73	3	3
HF 2	41	41	2	2
STROKE 13	24	24	1.5	1.5
DM 21, 9, 10	1060	106	4	40
COPD 11	249	69	2.5	9
EPILEPSY 6, 7, 8	151	151	4	4
CANCER 3	87	87	4	4
MH 9	178	88	5	10
MH 5	24	24	1	1
ASTHMA 3	64	64	3	3
ASTHMA 6	1066	100	3	31.5
DEM 2	67	67	3	3
Total hours			**36**	**112**

The UK QOF measures seem to be a suitable starting point for measuring our future performance.

Pay for performance implications for Australian general practice

To efficiently measure and reward performance in this way requires accurately summarised and maintained computerised clinical records. This involves high initial and ongoing investment.[5] Achieving targets would be greatly benefited by software tools such as Doctors Control Panel[6] which can highlight QOF requirements for individual patients during consultations. Sophisticated software for identifying where practice targets are being missed already exists in Australia,[7] but would need a much wider scope to include the range of QOF clinical measures. Such tools were made available to UK practices with substantial government financial support.

Pay for performance might fund supplementation of GP care by practice nurses within protocol driven chronic disease management clinics. However, the value of regular contact between a patient and their GP might be undermined by this drive to meet performance targets. It is possible that working toward narrowly focused targets could direct attention away from care of medical conditions that are not included in the scheme.

Conclusion

Applying UK style pay for performance clinical indicators to an Australian general practice is feasible in a well computerised practice and can identify significant areas for improved clinical care. If this practice had volunteered for the UK pay for performance system then an increase of $296 000 (out of a possible $465 000) would have been earned by the current level of performance in the clinical indicator component of the UK QOF.

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Conflict of interest: none.

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