

# Tackling therapeutic inertia: role of treatment data in quality indicators

Many patients with hypertension remain undertreated despite the apparent rosy picture given by doctors meeting current targets. Different measures are needed to overcome therapeutic inertia, argue **Bruce Guthrie, Melanie Inkster, and Tom Fahey**

Inadequate management of risk factors for conditions such as hypertension, diabetes, and coronary heart disease remains an important international challenge.<sup>1</sup> One approach is to set healthcare providers targets for blood pressure, glycated haemoglobin, or cholesterol levels in their populations. Such targets are commonly used as an indicator of quality of health care<sup>2-3</sup> and are increasingly being incorporated into programmes that pay providers for performance. However, we show that fixed targets fail to identify clear opportunities for improving health care. We propose that future measures should include treatment information, which is more closely linked to better control of risk factors.<sup>2</sup>

## Evidence from observational studies

Poor control of hypertension is defined as a failure to meet recommended blood pressure goals. Barriers to controlling hypertension include patient factors, such as non-adherence to lifestyle advice or drug treatment,<sup>4</sup> and healthcare provider factors, including the organisation or environment where care is delivered.<sup>1-5-6</sup> As measurement of quality of risk factor management has become routine, more attention has been paid to provider factors generally, and particularly therapeutic inertia—the failure to start new drugs or increase the dose in patients with an abnormal clinical measurement.<sup>7</sup>

Observational studies in the United States have found that therapeutic inertia is common in hypertension,<sup>1w1w2</sup> diabetes,<sup>w3 w4</sup> and hypercholesterolaemia,<sup>w5</sup> and is associated with poor control of risk factors known to be linked to longer term health problems.<sup>w5 w6</sup> In our 2002 observational study of 560 hypertensive patients from eight general practices in Tayside, Scotland, adherence to blood pressure lowering treatment was high (mean 91%).<sup>8</sup> However, in terms of the British Hypertension Society guidelines at the time,<sup>9</sup> 360/498 (72%) had suboptimal blood pressure at their last recorded measurement ( $\geq 140/85$  mm Hg without diabetes,

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$\geq 140/80$  mm Hg with diabetes) and 299/492 (61%) had suboptimal blood pressure recorded in two successive consultations, 211 (70%) of whom were taking fewer than three antihypertensive drugs.<sup>10</sup>

Table 1 shows the proportion of consultations in which patients with inadequate control did not have their treatment intensified. Treatment was not intensified in nearly half (45%) of consultations in which the patients had a single suboptimal blood pressure reading (box see bmj.com). Similarly, no intensification occurred in 36% of consultations after two successive suboptimal blood pressure readings, and 27% of those taking fewer than three drugs.

## Treatment intensification: definition and predictors

Treatment intensification was defined as either the prescription of a new class of antihypertensive drug or an increase in dose of an already prescribed drug. Intensification was considered to have happened if treatment was changed within six weeks of the consultation, providing that blood pressure was measured again in that period. This was to allow for delay in changing treatment when blood pressure was measured in secondary care or by primary care nurses, with subsequent prescription by general practitioners.

We examined predictors of treatment intensification using a random effects logistic regression model to account for repeated consultations by patients over time, and crude and adjusted odds ratios were calculated. To adjust for changes of treatment that were not an intensification in response to a suboptimal blood pressure, we chose reference categories for blood pressure variables (systolic  $< 140$  mm Hg, diastolic  $< 80$  mm Hg) below which treatment changes can be assumed to be solely due to other factors (management of coexisting conditions or drug side effects). Odds ratios therefore reflect treatment intensification above this baseline rate of treatment change.

**Table 1** | Numbers (percentages) of final consultations in 2002 in which treatment was not intensified among patients with poor control of blood pressure

	Single measurement $\geq$ threshold		Two consecutive measurements $\geq$ threshold		Two consecutive measurements $\geq$ threshold and taking $\leq 3$ antihypertensive drugs	
	No (%)	95% CI	No (%)	95% CI	No (%)	95% CI
Optimal control*	163/360 (45)	41 to 50	107/299 (36)	32 to 40	57/211 (27)	23 to 31
Audit standard control†	75/254 (30)	26 to 34	36/181 (20)	16 to 23	21/132 (16)	12 to 19

\*  $< 140/85$  mm Hg without diabetes,  $< 140/80$  mm Hg with diabetes.

†  $< 150/90$  mm Hg without diabetes,  $< 140/85$  mm Hg with diabetes (similar to current UK quality and outcomes framework threshold).

Therapeutic inertia persisted in a substantial proportion (16-30%) of consultations when blood pressure control was defined in terms of the less stringent audit criteria. Multivariable analysis showed a strong, graded relation between treatment intensification and increasing systolic or diastolic blood pressure (see table 2, *bmj.com*). However, doctors were more likely to intensify therapy when blood pressure exceeded 150/85 mm Hg for the current consultation or 150/90 mm Hg for the previous consultation. Intensification was progressively less likely as the number of antihypertensive drugs being taken increased. Our findings are consistent with data from a recent large US study, in which a third of patients with persistent blood pressure  $\geq 160/100$  mm Hg had no change in treatment or spontaneous return to lower blood pressure over six months (although the study did not examine if this reflected prescribing decisions or patient adherence).<sup>11</sup>

#### Evidence from randomised controlled trials

The effectiveness of intensification of therapy in reducing blood pressure and other outcomes is well established. The landmark randomised trial, the hypertension detection and follow-up programme, showed that a “stepped care” approach incorporating regular review, adherence reminders to patients, and an explicit programme of treatment intensification produces substantial falls in blood pressure and reduces all cause mortality.<sup>12</sup> Indeed, a two year post-trial surveillance study showed that blood pressure control returned to usual care levels when the stepped care arm of the study was discontinued.<sup>12</sup> More recently, a multimethod quality improvement intervention (dissemination of practice guidelines and quarterly comparative performance reports allied with academic detailing to share “best practice”) produced a modest improvement in the diagnosis and control of hypertension compared with performance reports alone.<sup>13</sup>

#### Use of process information to assess care

The UK quality and outcomes framework is the largest pay for performance programme in health care. About a fifth of general practice income is linked to performance measured by around 150 evidence based quality indicators of process, intermediate outcome, and treatment.<sup>14</sup> Ten indicators measure control of intermediate outcomes (blood pressure, cholesterol, and glycated haemoglobin), with 15% of performance related pay dependent on meeting these targets.

The eight practices participating in our hypertension study before the framework was implemented would have achieved near maximum points for blood pressure control despite appreciable therapeutic inertia

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**To be useful, numbers need to be accompanied by directions**

and missed opportunities for tighter control. In fact, framework performance has been remarkably high. For instance, in Scotland in April 2006, 93.4% of patients with hypertension had had their blood pressure recorded in the previous nine months, and 79.6% had a blood pressure below the payment target of 150/90 mm Hg.<sup>15</sup> Almost all Scottish practices achieved near maximum payment as a result.

Table 3 shows data from the practice of one of the authors, which achieved maximum payment for blood pressure control across all diseases. A quarter of patients do not achieve the quality and outcomes framework target,<sup>14</sup> and nearly half do not achieve the British Hypertension Society guideline levels<sup>16</sup> (although since blood pressure control is assessed on a single reading, not all will have persistently high blood pressure). An obvious interpretation is that blood pressure control is inadequate, but this conclusion is limited by the lack of consensus about what proportion of patients can achieve target blood pressures. This illustrates how aspirational targets in guidelines do not neatly translate into robust measures of quality.<sup>17</sup>

Irrespective of the target or standard used, a quality indicator that simply measures the proportion of patients achieving a particular blood pressure or other intermediate outcome does not give any indication of whether and how quality can be improved.<sup>17</sup> An analogy is with road signs. Knowing how far you are from your destination is important, but more helpful is a sign that shows you how to get there. Adding treatment information clearly identifies a substantial group of patients with uncontrolled blood pressure who have relatively low intensity treatment ( $\leq 2$  drugs), suggesting therapeutic inertia.

Intermediate outcome measures that incorporate treatment information can serve several purposes. Firstly, whatever the risk factor target being used, they clearly signpost an opportunity for improving quality and can drive consultation based clinician reminders, recall systems, and decision support systems in practices with electronic medical records. Secondly, they provide a more transparent accounting of performance,

**Table 3 | Blood pressure control for 742 people with hypertension in one practice. Values are numbers (percentages) of patients**

	Controlled	All	Not controlled		Not measured in past 9 months
			$\leq 1$ drug	$\leq 2$ drugs	
Government target*	494 (66.6)	185 (24.9)	90 (12.1)	154 (20.8)	71 (9.6)
British Hypertension Society Guidelines 2004†	348 (46.9)	323 (43.5)	102 (13.8)	222 (29.9)	71 (9.6)

\*Quality and outcomes framework target  $\leq 145/85$  mm Hg in patients with diabetes;  $\leq 150/90$  in other patients.<sup>13</sup>

†Audit standard  $< 140/80$  mm Hg in patients with coronary heart disease, diabetes, or renal disease;  $< 150/90$  mm Hg in other patients.<sup>15</sup>

particularly when performance determines pay. Finally, they inform the setting of plausible benchmarks of achievement in quality improvement and pay for performance programmes. They also achieve several desirable technical criteria for managing risk factors in chronic disease.<sup>2</sup> Information on treatment processes is tightly linked to the desired clinical outcome because action to intensify treatment improves the risk factor profile for most patients, reducing the chance of mortality and morbidity.<sup>2</sup>

However, it is crucial to recognise that intensification is not always appropriate. One obvious way to try to improve blood pressure control would be to reduce the framework target thresholds, which are generally higher than current guidelines.<sup>9</sup> Our proposal is to focus attention on patients with low intensity treatment and blood pressures well above guideline ideal targets, ensuring that patients identified are more likely to benefit from intervention. Many patients treated for hypertension and dyslipidaemia are at the lower end of the risk spectrum. For these patients the trade-off between lifelong drug treatment and modest absolute risk reduction is highest, and patient preference is likely to have the greatest effect on treatment choice.<sup>18</sup> In the face of marginal benefit and informed patient preference, therapeutic inertia can be good care.

As tools to communicate risk and benefit become commonplace, patient preference is likely to become explicitly incorporated into quality of care measures. Being able to account for individual patient preference and circumstances is an important part of proper accounting for quality,<sup>2</sup> but the process has to be transparent so that policymakers and the public can distinguish between rational decisions by clinicians or patients and gaming of the payment system.<sup>19</sup> In the UK, a first step to proper accountability would be for the published quality of care measures to list reasons why patients have had exceptions reported for particular targets.<sup>15</sup>

In conclusion, we argue that incorporating treatment information into intermediate outcome indicators will signpost how practices can improve management of risk factors by identifying and reducing therapeutic inertia. A first step will be to measure the extent to which opportunities for intensification exist among patients with poorly controlled blood pressure and other intermediate outcomes, and whether this varies by practice and by patient characteristics such as age and socioeconomic status. Subsequent identification of opportunities for intensifying treatment will require multiple methods including prompts and decision support for healthcare providers to make treatment more systematic,<sup>12-17</sup> together with suitable interventions to promote patient involvement in decision making and to enhance adherence.<sup>18</sup> Use of electronic medical records and linked computerised clinical decision support systems will be central to this integrated approach,<sup>20</sup> although the implementation of these systems in routine practice requires evaluation.<sup>18</sup> This approach also increases accountability by showing whether practices have responded to opportunities to improve intermediate outcomes.<sup>2</sup>

## SUMMARY POINTS

Failure to respond to abnormal measurements is a major barrier to good control of cardiovascular risk factors

Targets for risk factor levels are central to current international quality improvement programmes

Meeting these targets does not guarantee good management

Quality indicators should incorporate information that reflects the process of care

Treatment information would clearly identify opportunities for intervention and improved patient care

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