

# Breaking Down the Barrier in Hypertension

## How Patients Can Control Their Blood Pressure

By Denis Drouin, MD



### Janet's case

Janet, 44, is a part-time teacher. She was diagnosed with hypertension a couple of months ago. For over six months, her average blood pressure (BP) measured at the doctor's office, at her workplace and at the pharmacy, is 152/88 mmHg.

She has read that hypertension, if not treated, could lead to complications like heart disease, stroke, and renal failure.

Janet knows she will have to take drugs to control her high BP, and would like to know what she could do to assist in managing her disease.

She does not smoke, moderately drinks alcohol, does not exercise on a regular basis, and could lose 10 pounds to achieve her healthy weight.

***In Canada, 21% of adults over 18 are hypertensive, while 50% of adults over 65 have high blood pressure.***

### In this article:

1. How to improve BP control in Canada
2. What are patient's attitudes?
3. What are the barriers to controlling hypertension?
4. Is BP measured by physicians reliable?

Hypertension is defined as having a measured blood pressure (BP) >140 mmHg systolic or 90 mmHg diastolic, measured many times over six months, or on treatment for hypertension. (Numbers are lower if there is kidney disease or diabetes.)

Over the course of a lifetime, a 50-year-old normotensive person is at a 90% risk of experiencing hypertension. Hypertension is the leading cause of death in women, and the second leading cause of death in men in North America. This is due to the fact that hypertension is an important risk factor in the development of atherosclerotic cardiovascular disease, which is common and often poorly controlled.

The statistics in Table 1 are roughly comparable

# Hypertension

Table 1

## Hypertension statistics

Patients with hypertension have:

- 35% risk of developing atherosclerotic cardiovascular events
- 69% risk of experiencing a stroke
- 49% risk of experiencing congestive heart failure
- 24% risk of premature death

BP control is not optimal. In data collected from a 1991 Health Survey, it is widely accepted that:

- 43% of people with hypertension are unaware they have the disease
- 22% are aware, but left untreated
- 21% are treated, but their BP is not under control
- 13% are being treated and their BP is under control
- 9% of hypertensive diabetic patients have their BP treated and controlled.<sup>1</sup>

Table 2

## Target values for BP

Condition	Target (SBP/DBP mmHg)
Diastolic ± systolic hypertension	< 140/90 mmHg
Isolated systolic hypertension	< 140 mmHg
Home BP measurement (no diabetes, renal disease, or proteinuria)	< 135/85 mmHg
Diabetes	< 130/80 mmHg
Renal disease	< 130/80 mmHg
Proteinuria > 1 g/day	< 125/75 mmHg

Source: 2002 CHS Recommendations.  
SBP: Systolic blood pressure, DBP: Diastolic blood pressure, BP: Blood Pressure.

Hypertension should be easily treatable. In the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT), it was shown that it was possible to reach target BP values (BP <140/90 mmHg) for 70% of patients.<sup>2</sup>

## Improving BP control in Canada

In Canada, the Canadian Hypertension Society (CHS), in conjunction with the Coalition for Prevention and Control of High Blood Pressure, have spearheaded a joint initiative called the Canadian Hypertension Education Program (CHEP) to provide health professionals clear recommendations and practice standards. Although education is an inescapable means of disseminating recommendations, modern theories support the idea that patient participation and empowerment

to other westernized countries like France or Germany. In England, 34.4% of hypertensive patients are aware they have the disease and still experience uncontrolled hypertension.

should be part of the treatment strategies.

Patients should be informed of the complications related to hypertension when it is not treated, and of the benefits if the disease is treated

and target values are reached. Table 2 shows target values recommended by the CHS.

## What are patients' attitudes?

A phone survey on the awareness of hypertension has been done in two mid-sized Ontario communities involving 1,100 subjects, over the age of 35. A total of 34% of respondents claimed a doctor or a nurse had told them they had high BP, and 89% of the hypertensive group claimed they were being treated. Of the treated population, 98% received prescription medications, and 97% reported daily compliance. A total of 36% of hypertensive respondents indicated, however, that their BP numbers remained above normal. In the hypertensive group, 67% of patients said their BP was their own primary responsibility.<sup>3</sup>

Patients are willing to participate in the management of their disease. The question is what can physicians ask of their patients to help their hypertension.

## What are the barriers to controlling hypertension?

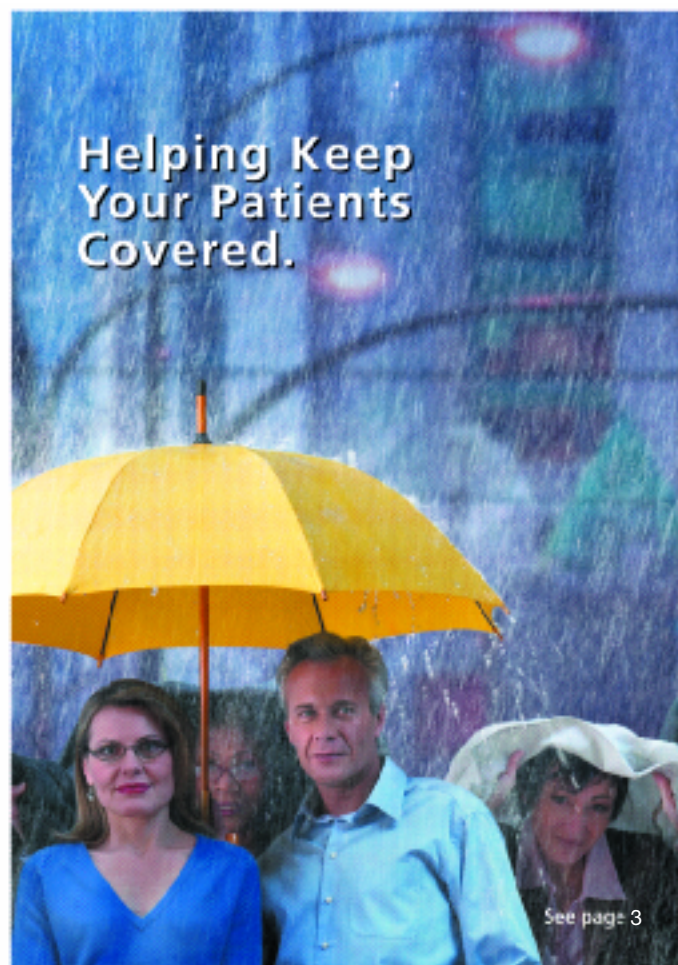
Many barriers have been identified that can impair the control of hypertension. Cost of

treatment and access to drug insurance plans are some examples. Some barriers are defined by a patient's non-compliance to medical recommendations while others may be related to a caregiver's non-compliance to the recommendations (Table 3). For example, it has been shown that physicians may be slow to adjust medication when BP measured in the office is not at the target value. In one study, physicians stated they were satisfied with BP values, despite 93% of systolic BP values being at 140 mmHg or above.<sup>4</sup>

In another study, 800 hypertensive veterans were followed for two years. When the files were reviewed, it was found that 40% of patients had BPs  $\geq$  160/90 mmHg (well over the 140/90 mmHg



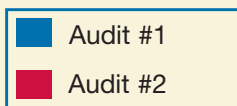
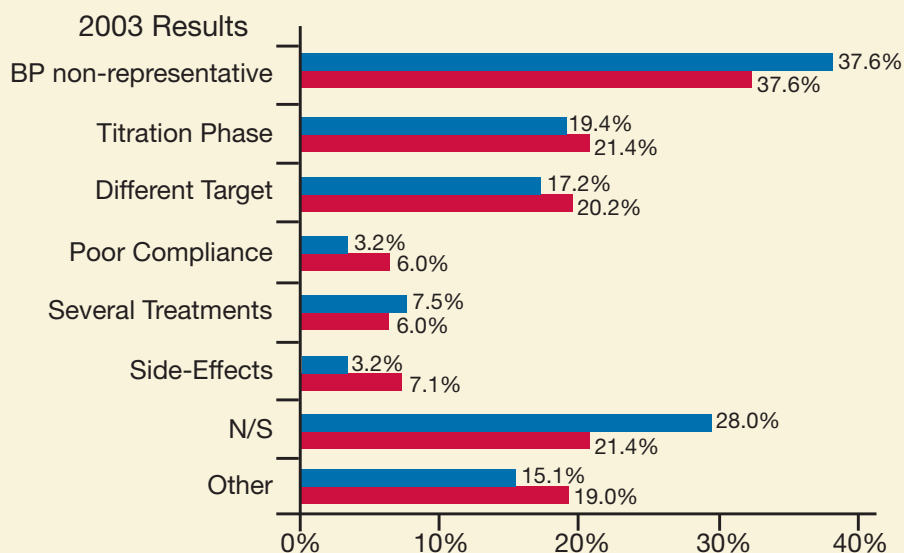
Dr. Drouin is a general practitioner, and an associate director at Université Laval, Faculty of Medicine Centre for Continuing Medical Education. He works for the Quebec City Public Health Department, and chairs the implementation committee for recommendations on hypertension in Canada.



# Hypertension

Table 3

## Reasons for not reaching recommended target BP levels



\* Physicians could select more than one reason N/S: Not specified

BP: Blood pressure

Table 4

## Self measurements of blood pressure - feasibility

### Can patients do it?

Age	MEN (2,686)			WOMEN (2,776)		
	SMT	SMT correctly	Average *	SMT	SMT correctly	Average*
60-69	1,534	1,472 (96%)	27 ± 5	1,393	1,322 (94.9%)	27 ± 5
70-79	1,009	961 (95.2%)	27 ± 5	1,149	1,105 (95.9%)	26 ± 5
≥ 80	144	132 (91.7%)	27 ± 5	234	222 (94.9%)	26 ± 5

\* Average number of self-measurements (SMT) performed by patients having correctly followed the SMT protocol.

Adapted from: Vaisse et al: Arch Mal Coeur 2000; 93:963-7.

# Hypertension

target value), despite an average of six or more visits to their doctors for hypertension per year.<sup>5</sup>

In another study, presented at the Canadian Cardiovascular Society (CCS) annual meeting in Halifax in October 2000, involving 19 physicians from non-academic settings (170 charts reviewed), it was reported that physicians had many reasons not to increase the posology. One reason was that 38% of physicians did not feel the BP measured in the office was reliable, while 20% were in a titration phase. According to the literature, the whitecoat effect is very prevalent and physicians could be right not to trust office measurements.

## Are BPs measured by physicians reliable?

A study showed that when BP was measured by a physician with his or her own usual technique, 62% of patients were hypertensive. The prevalence of hypertension came down to 34% when the standard technique of BP measurement was followed by the physician, and to 20% when the measurement was done by a trained nurse applying the standard technique.<sup>6</sup>

Having BP measured in the doctor's office may not be reliable, and one can understand if a physician would be reluctant to titrate the medication to reach target values recommended by the

Table 5

### Effect of Self Blood Pressure Measurement on BP

	Self measurement	Control
<b>Systolic blood pressure</b>	145.7 mmHg ± 0.9	147.6 mmHg ± 0.8
<b>Diastolic blood pressure</b>	88.7 mmHg ± 0.04	90.1 mmHg ± 0.04
<b>Responder's rate</b>	66.2%	59.8%

622 patients, 8 weeks of treatment. Target DBP < 90 mmHg. Probability > 0.05  
Adapted from: Vetter et al: J Hum Hypertens 2000; 14:235-41.

CHS. Patients state many reasons for their BP being high in the physicians' office. One reason is fear of being late for a visit. One can understand the resistance from the patient when the physician proposes to increase the posology or wants to add another drug to their drug regimen. In another

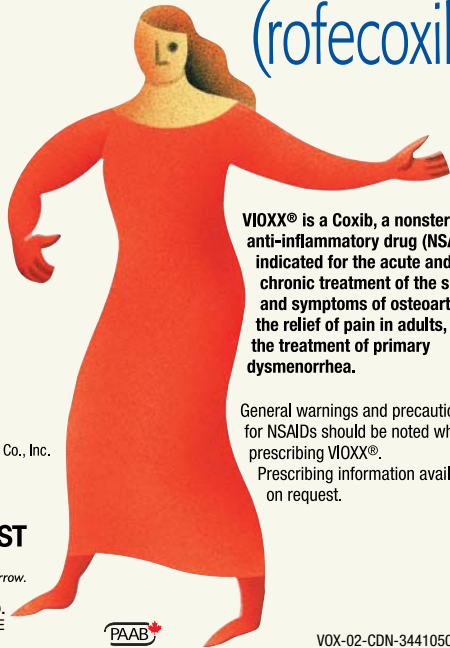


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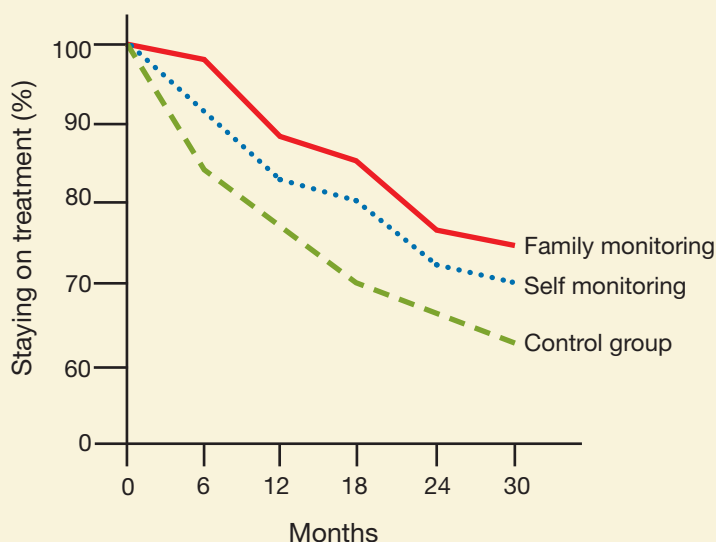
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# Hypertension

Table 6

## Family monitoring enhances compliance



study, it was stated that physicians were afraid to increase the dosage of the drugs because of the risk of side-effects associated with higher dosages.<sup>7</sup> A new oscillometric BP measurement device, the BP-TRU (VSM MedTech Canada) offers an interesting approach by multiple measurements that could help to reduce the whitecoat effect.

## How many home BP measurements are needed?

Researchers have tried to see if BP measured at home (HBPM) with a minimum amount of training could be of some help. In a study with 187 patients, researchers reported that patients were effectively able to have BP measured at home

with an oscillometric device, and there was an excellent correlation between the HBPM and the ambulatory BP measurement (ABPM), which is the gold standard.<sup>8</sup> Researchers used this simple protocol: HBPM should be measured for at least three work days, readings taken during the initial day of BP monitoring should be discarded, both morning and afternoon measurements should be performed, and duplicate measurements should be performed on each occasion. When the number of measurements reached 18, HBPM was comparable to ABPM.<sup>8</sup>

Physicians could ask their patients to bring back as many measurements as possible and

ensure that the technique was adequate (*i.e.*, a right sized cuff or recently calibrated device). It is not practical to hope to be able to analyze hundreds of measurements, but a quick review of about 20 measurements could provide reliable average values. Decisions based on the average of

***In a French study involving over 5,000 patients, 95% of patients aged 60 to 79 were able to adequately measure their BP at home.***

# Hypertension

at least 18 measurements, as described by the study, should convince the physician and the patient on the need to adjust or not to adjust the medication. The psychological impact on the patient is surely not negligible.

Measuring BP provides an instant feedback and will make the patient aware that his/her BP may not be at the recommended target values. Moreover, the patient will believe the validity of these measurements if the same elevated numbers are repeated over and over. A key point to this approach is that the patients should be instructed on their target values, which may be different between patients if they have target organ damage.

## Are patients able to measure BP at home?

It would be useful to know if patients can be trained to take HBPM, and if measurements are reliable. In a French study involving over 5,000 patients, it was discovered that 95% of patients aged 60 to 79 were able to adequately measure their BP at home. Accuracy was a bit lower (92%) for male patients aged 80 and over, and was still good (95%) for women of the same age group (Table 4).<sup>9</sup>

## What is the effect of self-measurement on BP?

A study followed 622 patients for eight weeks of treatment, the target value being diastolic BP below 90 mmHg (Table 5). There was a significant differ-

ence ( $p > 0.05$ ) in responses (66.2% of responders in favour of HBPM versus 59.8% of responders against) and lower BP values (self-measurement 145.1/88.7 mmHg versus 147.6/90.1 mmHg). This observation is in line with other sources, where there were positive correlations between HBPM and an enhancement of pharmacologic compliance measured by pill count and achieved BP (Table 6).<sup>10</sup>

## What are the benefits of treating BP to reach target?

It is important to educate patients on the benefits of treating BP to reach target values. Patients need to realize that achieving lower BP targets is



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# Hypertension

Table 7

## Tips for your patients

- Visit your doctor's office three or four times a year, or every month until your blood pressure (BP) is controlled.
- Never use a walk-in clinic for a hypertension followup.
- Limit the consultation to one topic.
- Set goals. Ask the physician what is the target value. Ask how to reach the target value.
- Identify priorities and set short-term goals.
- Begin with small steps. Have rewards set in place for each success.
- Put questions in writing. For example, what kind of exercise is recommended, where can I find nutritional counseling, what is the best method to stop smoking, etc.
- Ask the physician if there is a particular time in the week schedule that would be better for a hypertension consultation.
- Have BP measured at home by a family member with a validated device, at the workplace by a trained person, or at the pharmacy by a trained person using a proper technique.
- Bring HBPM device to the doctor's office twice a year for validation.
- Ask for written information to bring back home and read in a non-stressful environment.
- If questions are raised, or fear of side-effects related to the treatment, call the pharmacist or the physician before discontinuing the treatment.
- If you have concerns over the cost of the medication or about the treatment, do not hesitate to talk about it to the pharmacist or the physician.
- Plan a visit to the physician's office a month before drug renewal.

Remember: Hypertension is a chronic disease and by definition is a lifelong disease.

associated with substantial reductions in the risk of cardiovascular diseases and stroke. For example, in older people with isolated systolic hypertension, reducing BP to target values of <160 mmHg systolic and 90 mmHg diastolic has been associated with a risk reduction of up to 36% for stroke, and up to 25% for coronary events.

their BP and bring the diary to the office for discussion with their physician.

Although evidence is not always available, included in Table 7 is a set of suggestions, gathered through experience, to help physicians explain to their patients how to get involved with their own treatment. [CME](#)

## Involving patients in the decision-making

Communication is the key to success. Modern theories emphasize the importance of involving the patient in the decision-making process, and allowing more participation from patients in their treatment (Table 7).<sup>11</sup>

Patients should know their BP measurements and their target values. BP is often very variable, and is not always reliable when taken in the physician's office. Self-measurement of BP in a more comfortable (less threatening) environment will provide physicians with more reliable data. Moreover, patients will feel reassured when they see their BP is well controlled at home. Conversely, if patients discover that their BP is not controlled at home, this will put them in a position to ask their physician to do something about it. It can also facilitate adherence to non-pharmacologic interventions and allow a faster adjustment on medication when needed. Patients should keep a diary of

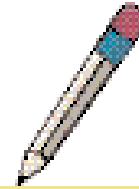


# Hypertension


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## Take-home message



- Physicians should respond positively to patients' attitudes and willingness to share responsibilities.
- Informing patients of their treatment goals, asking them to monitor their BP at home and to keep a diary of measurements could be very useful for management and decision-making when BP is not at target values.



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