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# Effectiveness of the Family Physician in Hypertension Screening and Management

## SUMMARY

As the initial step of a large randomized trial to test a new strategy of caring for hypertensive patients, the state of blood pressure screening was studied in 34 community-based family practices in southwestern Ontario. The charts of all active adult patients, 20-65 years of age, were reviewed.

At least one blood pressure reading was recorded in the last five years for 71% of the 40,453 patients. The proportion of patients screened increased with age; in each age group, a greater proportion of females than males had been screened. Overall, 8.9% of males and 9.6% of females were labelled hypertensive. The rate of patients so labelled increased with age to a maximum of 30% of the 55-65 age group. More than 50% of patients with diastolic pressures over 105 mm Hg were not taking hypotensive drugs. (*Can Fam Physician* 1982; 28:255-258).

## SOMMAIRE

Comme première étape dans le but d'expérimenter une nouvelle stratégie de soins pour patients hypertendus, on a commencé par étudier les valeurs de la tension artérielle dans 34 pratiques familiales communautaires au sud-ouest de l'Ontario. On a examiné le dossier de tous les patients adultes actifs dont l'âge variait entre 20 et 65 ans.

Au cours des cinq dernières années, 71% des 40,453 patients ont eu au moins une lecture de leur tension artérielle. Le nombre de patients soumis au test de dépistage augmentait selon que le groupe d'âge était plus avancé; une plus grande proportion de femmes que d'hommes ont subi le test dans chaque groupe d'âge. Au total, 8.9% des hommes et des femmes ont été étiquetés comme hypertendus. Le pourcentage de patients ainsi étiquetés augmentait avec l'âge jusqu'à un maximum de 30% dans le groupe d'âge de 55 à 65 ans. Plus de 50% des patients avec des tensions diastoliques audessus de 105 mm Hg ne prenaient pas de médicaments hypotenseurs.

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IT HAS BEEN frequently stated that there is a great deal of undetected and uncontrolled hypertension in Canada.<sup>1</sup> Since the majority of primary care is rendered by family physicians, this is indirect criticism of the family physician's ability to screen for and manage hypertension. In this paper we report the state of hypertension detection and care in 34 selected family practices in southwestern Ontario. The study was part of a larger project de-

signed to evaluate a strategy for the detection and management of hypertension in family practice.

## Method

All 178 family physicians/general practitioners within a 40 mile radius of London, Ontario, were invited to participate in the project; 87 agreed to take part. Thirty-four physicians who could be pair-matched for location,

practice activity level and length of time in present practice, were chosen to participate in the study. Table 1 shows that participants were more likely to be recent graduates, but similar to all physicians in country of graduation and membership in the College of Family Physicians.

One practice in each matched pair was randomly allocated to an experimental or a control group. In the experimental practices, patients aged 20-65 are being exposed to a hypertension screening and management pro-

gram.<sup>2</sup> At the end of five years, comparisons will be made between patients in the experimental and control practices concerning morbidity, blood pressure control, and compliance with treatment for hypertension.

In all practices, the patient population was identified in December, 1977, by completing an age-sex register from the practice records. Every patient who had at least one chart entry was considered to be active if he/she or a nuclear family member had visited once in the last two years,<sup>3</sup> and if there

was no indication that the patient had moved, or died. This definition of an active patient allowed the inclusion of those young and middle-aged males who, while infrequent attenders, nevertheless considered themselves patients of the practice.<sup>4</sup> The office medical record of each active patient was reviewed by a research assistant, who recorded up to two blood pressure readings for the preceding five years and noted whether hypertension had been diagnosed and whether the patient had been receiving a hypotensive drug. All data abstracted were systematically checked to ensure that transcribing inaccuracies were kept below 3%.

A physician checked the records of all patients receiving hypotensive drugs to ensure that they were truly hypertensive, which we established as having two diastolic readings over 90 mm Hg. The only exception to this rule was the rare case of a patient diagnosed as hypertensive before joining the practice, continuously taking hypotensive medication, and having normotensive readings.

## Results

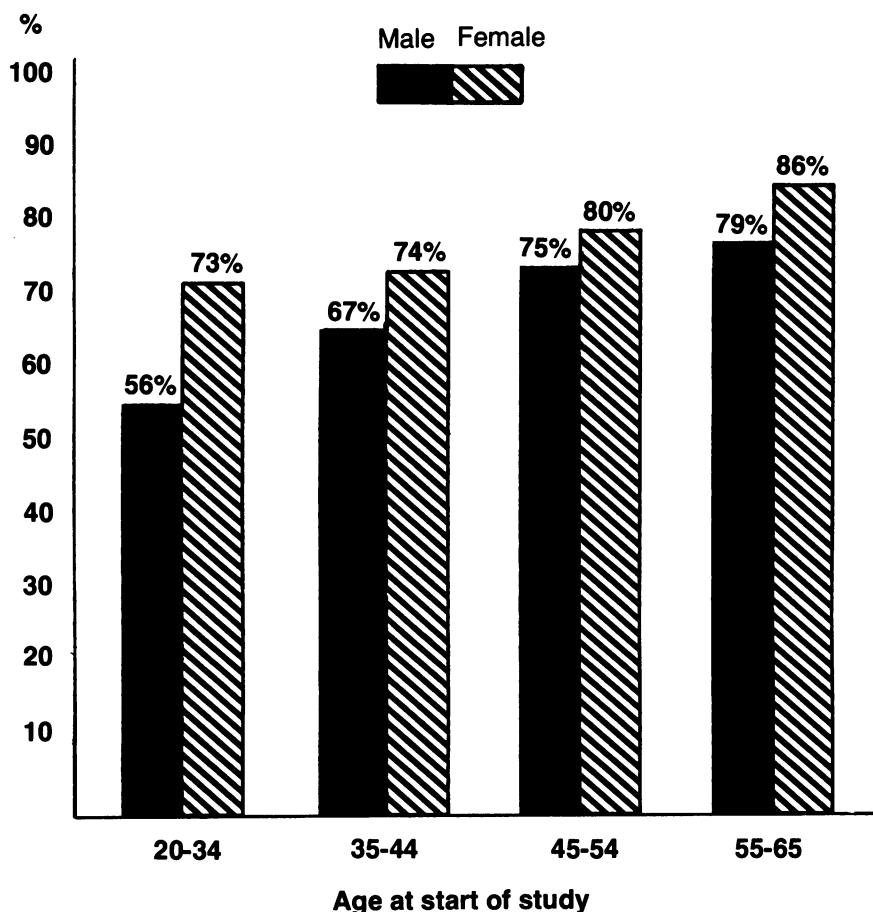
### 1. Patient Characteristics

The age and sex distribution of the study population (Table 2) closely resembled that of the census population of the three counties in which participating practices were located.<sup>5</sup> In the study group, there was a slight excess of females aged 20-29 years and a correspondingly lower proportion of people over age 55. In general, these family physicians cared for a representative cross-section of their community.

### 2. Recorded Blood Pressures

Figure 1 shows an age/sex breakdown of those patients who had at least one blood pressure reading recorded in the five years before the study began.

**Fig. 1**  
**Blood Pressure Screening\* in Study Practices by Age and Sex**



\* blood pressure recorded at least once in preceding 5 years

**TABLE 1**  
**Comparative Characteristics of Study Physicians**

	Total Number	Average Year of Graduation	Canadian Graduate %	CFPC Member %
Family physicians practicing in area*	178	1960.0	72.5	58.4
Interested in participating	87	1963.6	72.4	66.7
Chosen for study	34	1967.6	79.4	61.8

\* excluding fulltime university faculty

**TABLE 2**  
**Age and Sex Distribution of Study Population**

Age	Male		Female	
	No.	%	No.	%
20-34	8,770	47.6	11,270	51.2
35-44	3,777	20.5	4,094	18.6
45-54	3,272	17.7	3,609	16.4
55-65	2,609	14.2	3,052	13.8
<b>Total</b>	<b>18,428</b>	<b>100.0</b>	<b>22,025</b>	<b>100.0</b>

# Lectopam® (bromazepam)

## Rx Summary

The proportion increased with age and, in each age group, a greater proportion of females than males had been screened. The increase in the proportion screened with age is statistically significant ( $P < .001$ ) for each sex, as judged by a chi-square test for trend.<sup>6</sup> Overall, 28,741 patients (71%) had at least one blood pressure reading recorded in the preceding five years and 22,650 (56.0%) had at least one reading in the preceding two years.

### 3. Identification of Hypertension

The proportion of screened patients in different age groups who were verified as hypertensive is shown in Table 3. A steady increase with age is evident for both males and females. Under age 45, rates of identified hypertension in males tended to be higher than in females, while over age 45, females were more frequently designated as hypertensive. The overall percentages of labelled hypertensives among screened adults aged 20-65 were 8.9% in males and 9.6% in females.

### 4. Extent of Hypotensive Drug Use

Table 4 shows that hypotensive drug prescribing rises steadily with increasing age. At every age the proportion of hypertensive female patients on drugs is slightly higher than the proportion for males. Overall, drugs had been prescribed for 52% of males labelled as hypertensive and 62% of females.

The relationship between the use of hypotensive drugs and recorded diastolic blood pressures is shown in Table

**TABLE 3**  
Proportion of Screened Patients Identified as Hypertensive

Age	Male %	Female %
20-34	4.0	1.6
35-44	8.6	7.1
45-54	17.8	20.0
55-65	25.6	34.7

**TABLE 4**  
Hypertensives on Hypotensive Drug Therapy

Age	Male %	Female %
20-34	37.4	41.7
35-44	46.2	51.8
45-54	59.4	60.1
55-65	65.3	66.8

#### Indications

Useful for short-term, symptomatic relief of manifestations of excessive anxiety in patients with anxiety neurosis.

#### Contraindications

Patients with known hypersensitivity to benzodiazepines or with myasthenia gravis.

#### Warnings

Not recommended for patients with depressive disorders or psychosis. Advise patients against concurrent use of alcohol and other CNS depressants.

**Pediatric Use:** Because of lack of sufficient clinical experience, not recommended for patients younger than 18 years.

**Driving & Hazardous Activities:** In view of CNS depressant effect, warn patients against driving, operating dangerous machinery, or engaging in other hazardous activities requiring mental alertness and physical coordination. Caution patients on possible potentiation of effects of alcohol on such activities.

**Use in Pregnancy:** Since safety in pregnancy has not been established, should not be used during pregnancy. Because of risk of congenital malformations associated with minor tranquilizer use during first trimester, if prescribed for women of child-bearing potential, warn patients to consult physician regarding discontinuation if they intend to become or suspect they are pregnant.

**Use by Nursing Mothers:** Since 'Lectopam' and its metabolites are probably secreted in milk, should not be given to nursing mothers.

#### Precautions

**Use in Elderly:** The elderly, debilitated, or those with organic brain syndrome are prone to CNS depression with benzodiazepines. Initiate medication with very low doses (3 mg/day 'Lectopam' or less) and increment gradually to avoid over-sedation or neurological impairment.

**Dependence Liability:** Should not be administered to individuals prone to drug abuse; caution in patients with potential for psychological dependence. Since withdrawal symptoms, similar both to those occurring with other benzodiazepines and alcohol and to the symptoms for which the patient is being treated, have been observed after abrupt discontinuation of 'Lectopam', withdraw gradually if used in prolonged high doses or if the individual is suspected of being dependent.

**Mental and Emotional Disorders:** Any suicidal tendency in patients with emotional disorders should be recognized, and treated promptly and appropriately. 'Lectopam' should not be used in ambulatory psychotic patients because of possible paradoxical reactions.

Benzodiazepines should not be used for physiological anxiety or normal daily stresses, but only for pathological anxiety with disabling manifestations. They are not effective in characterological, personality or obsessive-compulsive disorders.

Not recommended for depressive or psychotic disorders.

**Patients with Impaired Hepatic or Renal Function:** Initiate therapy at very low dose and increase dosage appropriately to residual organ function. Monitor patient closely, with periodic laboratory assessments.

**Laboratory Tests:** If administered for repeated cycles of therapy, periodic blood counts and liver function tests are advisable.

**Drug Interactions:** May produce additive or synergistic effects in combination with other CNS drugs. Caution patients against concomitant use of other CNS depressants and alcohol.

#### Adverse Reactions

Most frequent are drowsiness, ataxia and dizziness. Paradoxical effects, e.g. release of hostility, irritability and excitability can occur with benzodiazepines. Less frequent side effects include visual disturbances, headache, seizures, slurred speech, mental confusion, elevated or depressed mood, nervousness, sleep disorders, lethargy, stupor, dry mouth, nausea, vomiting, non-specific gastrointestinal disturbances, muscle spasm or weakness, hypotension, tachycardia, pruritis, rash, incontinence, change in libido, decreased hematocrit, increased or decreased leukocyte count, elevated alkaline phosphatase, bilirubin, SGOT or SGPT and increased or decreased blood sugar.

#### Symptoms and Treatment of Overdosage

**Symptoms:** Manifestations of CNS depression. Hypotension and respiratory depression may follow large overdoses.

**Treatment:** General supportive measures with monitoring of vital signs. Gastric lavage as soon as possible. Induced vomiting helpful if patient is fully awake. Value of dialysis not determined. The probability of multiple drug ingestion should be considered.

#### Dosage and Administration

Individualize and titrate dosage to avoid excessive CNS depression. For symptomatic relief of excessive anxiety, short treatment course should usually be the rule. Initial treatment course should be no longer than one week without reassessment of need for limited extension. If necessary, adjust drug dosage after one week. Initially, not more than one week's supply of drug should be provided and automatic prescription renewals should not be allowed. Subsequent prescriptions, when required, should be limited to short course of therapy.

**Usual Adult Dosage:** Initially, 6 to 18 mg daily in equally divided doses, depending on severity of symptoms and response. Treatment should be initiated at lower doses and adjusted as necessary. Optimal dosage range 6 to 30 mg daily in divided doses. Up to 60 mg daily may be used in exceptional cases.

**Elderly and Debilitated:** Initial dose should not exceed 3 mg daily in divided doses. Adjust dosage carefully, depending on tolerance and response.

#### SUPPLY

Pink, cylindrical biplane scored tablet, edges bevelled:

LECTOPAM engraved on one side; other side scored, with ROCHE above and C below

3 the score: each containing 3 mg bromazepam.

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Bottles of 100.

Product monograph available on request.

\*Reg. Trade Mark

\*Lectopam is trademarked under other names in various countries



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5. Fewer than 50% of patients with pressures over 105 mm Hg and only 25% of those with pressures over 90 mm Hg were receiving hypotensive drugs. Included in this table are patients who would be receiving these agents for indications other than hypertension.

**TABLE 5**  
**Drug Use and Last Diastolic Blood Pressure Level Recorded in Chart**

Diastolic BP (mm Hg)	Taking Medication	Not Taking Medication
<90	1,764	23,464
90-104	884	2,430
105+	81	96
<b>Total</b>	<b>2,729</b>	<b>25,990</b>

## Discussion

These selected general practitioners, while showing an interest in participating in the study, were not taking any special measures for the control of hypertension. At the time the baseline data were gathered, no physician had a systematic approach to the detection of hypertension and none had established a patient follow up system. The population attending these physicians was representative of the surrounding population in age and sex distribution. The participating physicians were similar to other physicians in the area in terms of country of graduation and College of Family Physicians membership. However, the participants were, on the average, more recent graduates. This is understandable when one considers the reluctance of a physician near retirement to participate in a five year study. Therefore, pre-World War II graduates who have practiced for more than 35 years are not represented in this study. However, their role in the provision of care in this region is relatively small.

The five year screening rate of 71% was higher than expected. The higher rate may reflect physicians' increased awareness of the importance of detecting hypertension. It also demonstrates that with some extra effort and organization, the potential for total screening of the high risk, over 45 age group could be realized in the family practice setting.

The rates of labelled hypertensives—8.9% for males and 9.6% for females aged 20-65 years—are consistent with other studies when the various definitions of hypertension are

considered.<sup>7-10</sup> What is striking is the high rate of patients in the 55-65 year age group having readings in the hypertensive range (25% of men and 33% of women). With the increasing pressure to give medication to all patients having readings over 90 mm Hg,<sup>9</sup> the implications of this finding deserve further consideration.

The drug therapy approach for hypertension leaves much to be desired. The commonly used drugs all have serious side effects and alter normal body function. Since the effects of longterm exposure are unknown, the prospect of having a third of the population, in some age groups, taking these drugs, is not one to be viewed with complacency. This is the time for family physicians to explore non-drug approaches to elevated blood pressure.

The blood pressures in this paper were taken in family physicians' offices by doctors providing patient care. While there was no standardization of technique or opportunity to reduce sources of variability, these data reflect the state of hypertension detection in the practice setting. The tendency for casual pressures to be higher in the office setting is counterbalanced by the physician's preference for lower digit boundaries and the usual practice of retaking elevated pressures after several minutes.<sup>11</sup> Thus the data in this paper are representative of the information used to make clinical decisions.

Many patients with recorded blood pressures over 90 mm Hg were not taking drugs. Considering the state of knowledge in 1977, this was justifiable for those persons having readings under 105 mm Hg. However, more than 50% of patients with diastolic pressures over 105 mm Hg were not taking hypotensive agents. This suggests there is a major problem in managing these hypertensive patients.

## Conclusion

Without extra effort or an organized approach, volunteer family physicians had recorded the blood pressure of 71% of their 20-65 year old patients in the course of providing care. Since these physicians were volunteers, our findings may not be strictly generalizable to all Ontario physicians. However, these physicians were similar to other local physicians concerning College of Family Physician membership

and country of graduation. The potential for complete population screening by these family physicians is high, with little added cost to the health system. It is in keeping patients' blood pressure under control that the family physician needs assistance. This is the objective of the randomized trial that has been undertaken in the London Hypertension Study.

The high prevalence of hypertension, together with the lower levels at which treatment is now recommended, will mean that unless effective non-drug therapy or preventive approaches are developed, one in three older patients will be taking hypotensive medication. ●

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