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## Swedish general practitioners' practice behaviour in hypertension care

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**Objective** – To examine care organization and practice behaviour in hypertension care among Swedish general practitioners.

**Design** – A postal questionnaire followed by a structured interview, in a two-step study design.

**Setting** – Uppsala-Örebro region in mid-Sweden (population 1.9 mill.)

**Participants** – General practitioners employed by counties, according to a register maintained by the Swedish Medical Association (N=489).

**Main outcome measure** – Practice behaviour score compared with a gold standard.

**Results** – 392 general practitioners returned the questionnaire, and the interview was accomplished with 222 of 232 who agreed to participate. Non-responder studies were carried out in both steps. Every fifth GP had access to a special hypertension clinic at their health centre, and 29% had specially trained nurses for hypertension care. 31% reported use of written guidelines. 47% declared they accepted higher BP-levels than recommended, although 78% agreed with official guidelines. The mean practice behaviour score was 8,77 (range 5-12, maximum score 12).

**Conclusion** – Although a majority of GPs agree with official guidelines, there is a considerable variation in care organization and practice behaviour in hypertension care.

**Key words:** general practice, primary health care, physician practice pattern, hypertension, guidelines, medical audit.

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Guidelines and other consensus documents, based on clinical trials, have been introduced as a practice support in hypertension care. The relevance of using clinical trials as a basis for guidelines for clinical practice has been discussed by Wilcox et al (1), Swales et al (2), and Jenkins (3).

In Sweden, three documents have been presented since 1980 as practice guidelines on hypertension care. The last two (4,5) are consistent with each other and are regarded as a gold standard. The introduction of guidelines implies a presumption that these create conformity in physicians' attitudes to and care of hypertensives, in general practice as well as in outpatient departments at hospitals. However, there have been reports of a lack of efficiency in hypertension care (6, 7, 8), indicating either that practices were deviating from the guidelines, or that guidelines were not fully accepted by the physicians.

Hypertension is a common diagnosis in general practice, and every practitioner (GP) has to develop

a practice for hypertension care. The disease is therefore well suited to studies of practice behaviour. So far, we know little about the content and the development of individual GP's practice.

The General Practitioner Hypertension Practice Study was formed in 1988 with the aim of examining hypertension care among Swedish GPs. This first report deals with the design of the study, the organization of care and doctors' attitudes and behaviour.

### Material and methods

#### *Study population*

The study population consisted of GPs employed by the counties in the Uppsala-Örebro region in mid-Sweden (population 1.9 million), according to a register maintained by the Swedish Medical Association.

*Questionnaire study (October 1988–January 1989)*

The GPs received an introductory letter and a postal questionnaire. Seven questions about age, sex, professional years and years in present position, hours a day meeting patients, a personal declaration as to whether hypertension was a special professional interest, and ranking of hypertension as a diagnosis in the surgery formed the study background. The questionnaire ended with a request to the GP to take part in a telephone interview. One reminder letter, with a copy of the questionnaire, was sent to the GPs who did not respond within a month. This part of the study was also used to update the register. The number of active GPs in the region was 489; the response rate was 80.2% (392 GPs).

As a non-responder study, 30 out of the 97 who did not respond to the questionnaire were randomly sampled for a follow-up study by telephone by a secretary. After repeated calls, the secretary got in touch with 14 out of 30 and collected information about another two working abroad. Eleven of these 14 admitted having seen the questionnaire. Reasons for not responding were boredom (with questionnaires) and lack of interest in the subject (four), lack of time (three), and «got lost in the heap of papers» (four).

*Telephone interview (August 1989–January 1990)*

252 responders agreed to a telephone interview, inside or outside working hours, according to what they had suggested in the questionnaire. 20 of these were excluded because they had changed professional status (pensionists, change of medical field or region) during the interval. The time for the interview was confirmed by post or a telephone call, but changes were numerous and 10 interviews never took place. The interviews were structured; there were 66 questions with fixed alternative answers. All these telephone interviews were performed by the author; they lasted c. 35 minutes.

Of the 140 GPs who chose not to participate in the telephone interview, every 10th was contacted for the interview all the same, as a non-responder study. Out of 13 selected, one had left the region, one had changed medical speciality and one did not manage to make contact for the interview. There was no age difference between the participants and non-participants, but the latter comprised significantly more females (64/140 resp. 67/252), they had specialized for a shorter time and they had less interest in hyper-

tension. They ranked hypertension as a diagnosis in surgery at the same level as the participants.

**Results***Care organization*

Table I shows the organization for care of hypertensives, with items chosen from the guidelines. Every fifth doctor worked in a health centre with a special hypertension care unit. A nurse specially trained for hypertension care was available to every third doctor. The majority (75%) of the GPs had a hospital less than 25 km away.

Table I. *Organization for care of hypertensives at Primary Health Care Centres (PHCC). N = 222 GPs.*

	%	(%)
Special hypertension unit at PHCC	19	
Nurse specially trained for hypertension care	29	
Written guidelines for hypertension care in use at PHCC*	31	
Specially made for the PHCC		21
Guidelines for town/area		17
– for the county		42
– on the national level		23
Diet counselling available at PHCC*	91	
By dietician at PHCC		32
By dietician outside but in primary care		15
In another way, e.g. by a nurse		79

\* more than 1 option possible

Equipment for BP measurement is presented in Table II. 66% of the GPs stated that the staff had been trained/updated in hypertension care during the last 2 years, and 69% that training in standardized blood pressure measurement had taken place.

167 (75%) reported that hypertensives were recalled for regular follow-up visits, while six doctors said

Table II. *Equipment for blood pressure measurement, available in each consultation room. N = 220.*

	%
12 x 35 cm cuff size	85
15 x 43 cm cuff size	40*
Conical cuff coverage	2
Leg cuff	3
Children's cuff (9 x 15 cm or similar)	12
Triple size cuff	17

\* In additional 43% had easy access to a 15 x 43 cm cuff.

Table III. Assessment of sources of information and knowledge about care of hypertensives. *N* = 222.

Rank no	Source	Mean value (1-4)
1	Doctor's personal postgraduate training (literature, etc.)	3.38
2	Courses, discussions, other postgraduate training sessions	3.05
3	Recommendations by the National Board of Health and Welfare	2.97
4	Specialist training: - current specialist training system - (older specialist training system 1.98)	2.92
5	Recommendations by the National Committee against Heart and Lung Diseases	2.50
6	Information from drug companies	2.46
7	Local guidelines	2.09
8	Internship years	1.98
9	Undergraduate years	1.97

they only recalled certain patient groups (depending on age and complicating diseases). 71 (32%) claimed knowledge of the number of hypertensives cared for by their Primary Health Care Centre (PHCC) or by themselves, while only seven (3%) knew the total number of hypertensives in the catchment area. 11% had audited their hypertension care.

The recommendations by the National Committee against Heart and Lung Diseases (1986) and the National Board of Health and Welfare Drug Information Committee (1987) were known by 80 and 84% of the GPs, respectively.

The GPs were asked to rank nine given sources of information and knowledge about hypertension care, using a 4-point scale for each source. One indicates very low or no importance, and four great importance. The overall ranking (Table III) shows that the individual doctor's own activities in continuing medical training were ranked highest.

#### Practice behaviour

The GPs' attitudes to hypertension care and reported practice performance are shown in Table IV. For non-pharmacological treatment of hypertension 60% of the GPs laid the responsibility on the patient, giving recommendations mainly, but when suitable they referred for dietary advice (41%) and stop smoking aid (36%) by other personnel. 39% routinely referred hypertensives for dietary advice and 30% for stop smoking aid.

Table IV. Attitudes in hypertension care. *N* = 222.

	%
Do you agree with the official guidelines?	78
Do you accept higher BP levels than recommended before starting active treatment and/or as a therapeutic goal?	47
Do you hesitate to use drugs for treatment of mild hypertension	13
Do you differentiate between the sexes on BP levels before starting treatment and as a therapeutic goal?	37*
Do you found your hypertension treatment in patients under 65 years	
- mainly on DBP?	85
- mainly on SBP?	0
- equally on DBP and SBP?	15
Do you consider your hypertension care works well?	97
Have you ever audited your hypertension care?	11
Do you make notes about smoking habits?	92
Do you have or strive for strict routines for blood pressure measurement?	92
Do you actively use the concept of «blood pressure treatment goal»?	21
Do you look upon hypertension as a disease per se?	7
- or as part of a risk factor pattern?	90
	(3% both ways)
What attitude to hypertension care does the PHCC as a unit hold?	
a) gives priority compared with other patient groups	25
b) no priority compared with other patient groups	71
c) gives priority to other diseases	3
	(1 lacking opinion)

\* 57% accepted 5 mm higher BP in women, 8% accepted more than 5 mm, 35% could not specify.

The concept of «minimum standardized examination» in a formerly untreated and uncomplicated case of hypertension, as recommended in the practice guidelines, was used as a reference standard when the GPs were asked to describe their own minimum standardized examination. The concept was recognized and reportedly used by 96% of the interviewees. Table V presents the declarations compared with guidelines. 33% of the GPs reported that they included a heart X-ray in their minimum standardized examination, although not recommended in the guidelines.

Table V. Standardized minimum examination in a formerly untreated, uncomplicated case of hypertension. Items according to guidelines. Spontaneous declaration. N = 214\*.

	%
Repeated BP recording	81
Medical history and physical examination	79
S-potassium	85
S-creatinine	91
S-cholesterol	55
S-glucose	47
U-protein	86
ECG	85

\* 8 did not use a minimum standardized examination.

#### Variations in performance

In order to examine the variation of performance among GPs, 12 items were chosen from the guidelines as essential ingredients in hypertension care in a formerly untreated and uncomplicated case of hypertension. Items chosen were repeated blood-pressure recording, medical history and physical examination, serum potassium, serum creatinine, serum cholesterol, serum glucose, urinary protein, ECG, application of the concept of a «treatment goal», a routine for recall of hypertensives for follow-up visits, and arrangements for help in stopping smoking and diet counselling as means of nonpharmacological treatment. Each item was given a 1 point score, the maximum score thus being 12. The variation between GPs

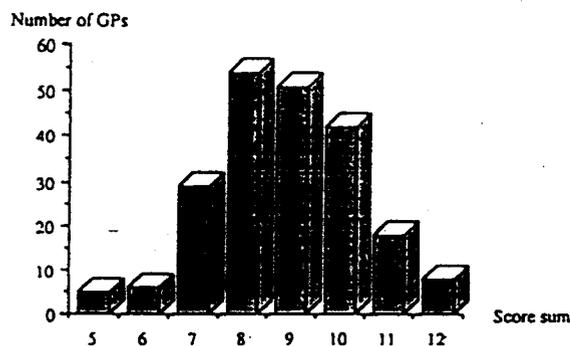


Fig. 1. Hypertension practice performance score. N = 213.

in the study group (N = 213) is shown in Figure 1. The mean score was 8.77 (SD 1.50), range 5–12. Corresponding score among interviewed non-participants was 8.89 (SD 1.27), range 7–11.

#### Discussion

The Swedish health care system is highly hospital-centered, with only about 15% of the physicians working as GPs. There is no list system, but a primary health care centre provides medical service to a defined population. In order to meet the patients' demands of access to primary care, other care providers, especially nurses, have been integrated in the patient-related work. Team work presupposes shared responsibility for patients, and this might affect doctors' practice behaviour.

#### Methodology

A physician telephone interview was chosen for this study for several reasons. Three main methods are available for practice pattern studies: questionnaires, interviews (patient and physician), and scrutiny of medical records. Direct observational studies (e.g. using videotapes) are time-consuming and expensive, and the observer might influence practice; therefore they are seldom used. Gerbert and Hargreaves (9) validated four methods and found the content validity in interviews reasonably good, while chart audit and videotaped observation had poor content validity. Thompson and Osborne (10) demonstrated a conspicuous failure of family practitioners to document information essential for review, and only half of the doctors in that study believed that information obtained from records gave an accurate picture of their practice.

The Finnish health care system is similar to the Swedish. Kekki (11) studied all approved certificates for free antihypertensive medication in a sickness insurance district in Finland during one year. 33% of the certificates did not fulfil the general criteria for hypertension diagnosis, because of lacking information on procedures and tests. In Sweden, Roll et al (12) found that symptoms associated with atypical chest pain, reported in a research interview, were not commented upon in medical records in 70–80% of the cases.

An interview gives an opportunity, in discussion with the interviewee, to categorize variations in conditions and routines. By using one interviewer, the

demand for conformity in interpretation of descriptions was met. It is difficult to transform small variations in routines and organization of care into an acceptable number of items and alternatives in a questionnaire. Another reason for the interview method was the suspicion that a duplicated questionnaire would be met with disinterest, especially when it came to scrutinizing the individual doctor's attitudes and practice.

The GP participation rate in this study is of the same magnitude as reported in a study of the awareness, use and impact of the 1984 Joint Committee Consensus Report on high blood pressure (13), 47 and 44 %, respectively. Other practice pattern studies have reached participation rates ranging from 10 (Adamson et al, 14) to 90% (Kofron et al, 15). The external audit study design in our study, although performed by a colleague, has probably affected the participation rate, as has the demand for time, reflection, and performance declaration. Practice studies and audit are so far unfamiliar to Swedish GPs.

Experiences during the first non-responder study made it clear that many obstacles, raised by nurses and paramedical personnel to «protect» the practitioner, could be more easily overcome if the interviewer was a colleague. For practical and economic reasons the author conducted all the interviews.

Computers offer new possibilities for audit (16), but complementary methods are needed to explore attitudes and organizational matters. Standardized patients have been used and presumed to gather a more accurate practice performance (17), but they cannot be used in the hypertension case.

#### *Care organization*

The study confirmed the well-established cooperation between doctors and nurses in primary hypertension care, looked upon as a worthy constituent of patient-oriented, qualitative and well-organized care for hypertensives in Sweden as well as in the UK (18, 19).

Non-pharmacological treatment as a first step in cases of mild and moderate hypertension is a central message in official guidelines for hypertension care. Our findings indicate that it has been accepted and incorporated into the therapeutic armamentarium, although much responsibility still seems to rest with the patient. The facilities for preventive measures concerning smoking are well ahead of those reported from Minnesota (15), where 29% of the physicians

(compared with 96% in the present study) reported a routine for identifying smokers in the chart, and 27% had a staff member trained to help patients stop smoking (compared with 52%).

#### *Practice behaviour*

The most important findings from this study, summarized in Table IV, V and Figure 1, confirm the findings by, for example, Smith and Clayton (20), Lomas and Haynes (21), Stern (22), and Dahlöf et al (7), that attitudes and clinical practice differ between physicians and differ from official guidelines. The material will be used for further examination of which factors influence the individual practice.

#### *Representativeness*

The two-step design of this study gave an opportunity to the GPs to dispense with the interview. A direct approach for an interview might have given another participation rate. The extent of the interview was the main reason to introduce it by the questionnaire. An uncontrolled selection step was introduced by the design, the participants probably being more interested in hypertension care than the non-participants.

The 222 GPs who took part in the interview study constituted 47% of the study population. Interviews were performed with 96% of those who accepted it. The non-responder studies do not indicate any essential common characteristics of those groups that should affect the representativeness. The non-responders in the interview study represented more urbanized areas and larger PHCCs, and there were more females. However, the reported practice performance score differed very little, with a mean of 8.77 in the study group and 8.89 among the non-responders. It seems justifiable to accept the results of this study as representative for GPs in the region. Keeping in mind that a positive selection might be at hand, the results should be interpreted with caution.

There are limitations with the interview method, as with other available methods, when it comes to content validity concerning behaviour. One is the fact that a doctor who has never audited his own practice actually does not know it, he just holds attitudes and beliefs. Another limitation is the suspicion that an interview might tend to yield the correct answers, presuming they are known, rather than the personally valid ones. However, the figures in Tables

IV and V speak against that being the case in this study.

Jenkins (3) defines guidelines as «a balance between conflicting views controlled by professional conservatism and pressure for consensus», but «none the less they are acceptable as standards and can be effective in improving clinical practice». Descriptive studies are well suited to identify variation in practice, between doctors as well as compared with guidelines, to explore possible factors influencing the variation, and to contribute information for development of sound practice behaviour.

## Conclusion

This first report from The General Practitioner Hypertension Practice Study reveals a considerable variation in self-reported practice behaviour in hypertension care among Swedish GPs and compared with official guidelines. The variation includes organizational matters as well as attitudes and practice performance. Further analysis will be directed to identifying factors decisive for practice behaviour in accordance with practice guidelines.

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