

Primary health care monitoring project

A year of practical experience with a computerized information system

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This monitoring project focuses on the collection, analysis and monitoring of continuous information on all contacts between twelve general practitioners and 20,330 patients during two years. Results of the first year, covering 60,445 contacts and 92,206 problems, are presented.

Goals

The first goal of the monitoring project is to study the professional behavior of general practitioners, with emphasis on possibilities to change this behavior in a well-defined direction by weekly feedback on the professional behavior of all individual participants: audit on the basis of factual information. The general practitioners themselves decide whether proposed changes are desirable. Both self-audit and group-audit are involved.

The second goal is to analyse morbidity and utilization patterns in a well-defined population, with emphasis on reliability of coding, classification and registration (figure 1).

Composition of the monitoring group

The members of the group are not representative of the Dutch general practitioner. Efforts were made to distribute the members of the monitoring group over different settings. Four subgroups were formed:

- a health center in Rotterdam (Ommoord) (about 11,000 patients) with five general practitioners: C. M. A. Grimbergen, J. Heeringa, H. Lamberts, A. T. van der Schoot-van Venrooy, C. van Weel, and two trainees;
- two cooperating solo-practitioners in Rotterdam City (about 4850 patients): J. H. M. Breteler and G. Th. van de Poel, and one assistant;
- a new, still expanding health center in a suburb of Rotterdam (Hoogvliet) (about 650 patients) with three general

practitioners: S. Best, W. J. L. Kitslaar and E. Sloot;

- a small health center in the south of The Netherlands (Maastricht-Heer) (about 4250 patients) with two general practitioners: A. M. R. Seelen, F. H. J. A. Vissers, and one assistant.

The project functions with the secretarial and organizational help of Mrs M. Trouw and with the managerial and computer assistance of H. F. Bezemer, who is assisted by two students (O. M. Ros and J. H. Stam).

Prof. Dr H. J. Dokter and Dr H. Lamberts are responsible for the project to the „Praeventiefonds”, which provides finances. Dr H. Lamberts has been appointed project director and is

responsible for the relevance of the project, its scientific validity, and the daily work.

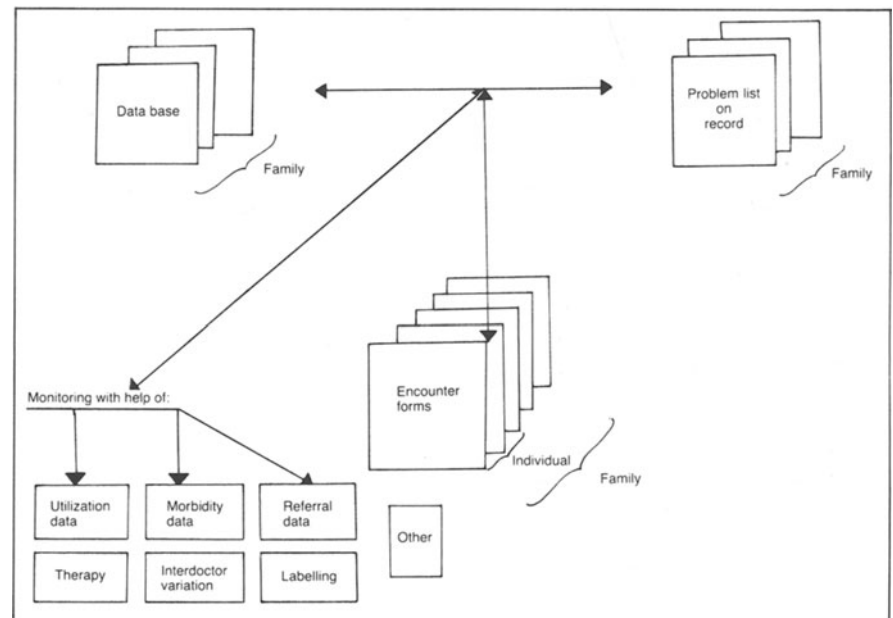
Organization of project and choice of computer system

What we want is to process information without need for immediate reproduction. We do not want to replace the patient record with the aid of a computer. We therefore chose a relatively unsophisticated, easy-to-run, mono-terminal, relatively slow mini-computer with a big memory (IBM-system 32). The disk provides 13.7 million bytes, while the central working unit has a capacity of 32 K. Floppy disks are used in combination with the disk. The printer is rather slow (50 lines per minute), which is why some programs take four to six hours. The weekends and nights are used for such occasions. Our experience during the first year indicates that the choice was wise.

All general practitioners involved in the project have full-time jobs. Their extra efforts for the project are not compensated, either financially or with time.

The funding by the „Praeventiefonds” provides one full-time job for the project, which has been divided between three students. They are responsible for the daily input and for the production of standardized output. One of them has been specially trained and is now able to run the project technically on a day-to-day basis. We were happily surprised to find that, despite the usual organisational and technical problems, we were able to follow the rather strictly planned

Figure 1. Schematic impression of monitoring project.



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- insurance (private or national insurance) (figures 7 and 8);
- code of general practitioner;
- status in practice (in practice before 1st May, after 1st May, died, born, left practice, etc.);
- number of encounters in the first year (utilization rate) (figure 4);
- problem behavior or chronic disease in the first year (figure 5).

Most information is presented in the form of sex/age distributions (figures 7, 8 and 9).

Most distributions and/or rates are computed for the basic population: patients included in the practice from 1st May 1979 for the complete year (n=18,137) (figure 6). The actual active patient population (increasing from 19,446 on 1st May 1979 to 21,192 on 30th April 1980) is used as a reference for the actual workload of the doctors involved. The difference between the basic and the active population increases (from zero on 1st May 1979 to 3055 on 30th April 1980) because the actual population is increasing while the basic population is slowly diminishing as patients leave the practice.

The basic practice population (figure 6) shows the usual overrepresentation of older women.

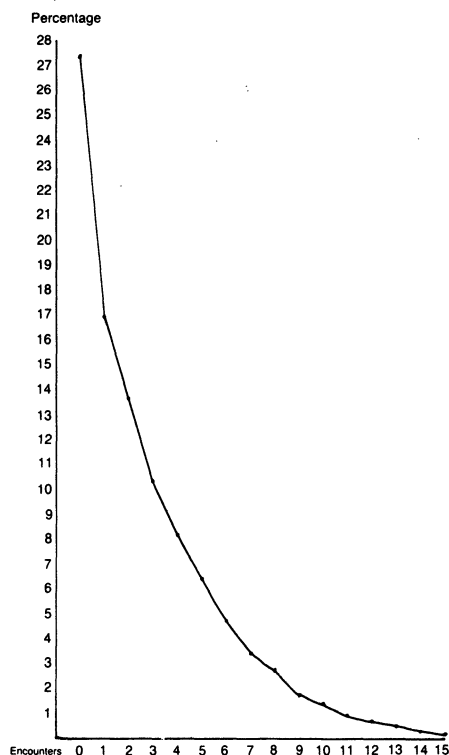
In figures 7 and 8 (basic population), the distributions of national insurance and private patients demonstrate that the mere difference in the patients' financial circumstances coincides with important differences in sex/age distributions between both groups. This stresses that different utilization rates for private and insured patients cannot be readily explained by differences in access to primary care without correction for sex and age.

Apart from Hoogvliet the differences between the list sizes are considerable (mean active population 2100, with a maximum of 2550 and a minimum of 1970). The practice composition, also, varies widely not only as to sex and age but also as to insurance and family composition. These differences have to be taken into account if differences in professional behavior are to be understood.

International classification of health problems in primary care (ICHPPC-2)

The ICHPPC-2 is an important development in international general practice. ICHPPC-2 (or ICD-9-General Medicine) is practically compatible with ICD-9. Our experience with ICHPPC

Figure 4. Number of encounters for each patient in the practice for the complete first year (basic population). N = 18,137.



(Lamberts and Sloot; Lamberts 1978) and its flexibility made its use attractive. Especially the principles of optional hierarchy for condensing or expanding the ICHPPC-2 rubrics are important.

Apart from the abovementioned, the potential of ICHPPC-2 as a three-axial classification (physical, psychological and social problems) is important because of the interest in problem behavior as distinct from illness behavior (Lamberts 1979). In 1979, a WHO/Rockefeller Foundation working group recommended the use in primary health care of a three-axial classification, explicitly taking into account physical, psychological and social problems (Recommendations).

Figure 5 lists the percentages of the basic population presenting in the first year with at least one psychological or social problem and those suffering from at least one chronic disease. According to this, 14.0 percent of the basic population presented with a psychological problem, 11.2 percent with a social problem, and 9.1 percent were suffering from a chronic disease likely to influence daily life.

These figures are not surprising, but

Figure 5. Existence of psychological and social problems and of chronic diseases during the first year (basic population). N = 18,137.

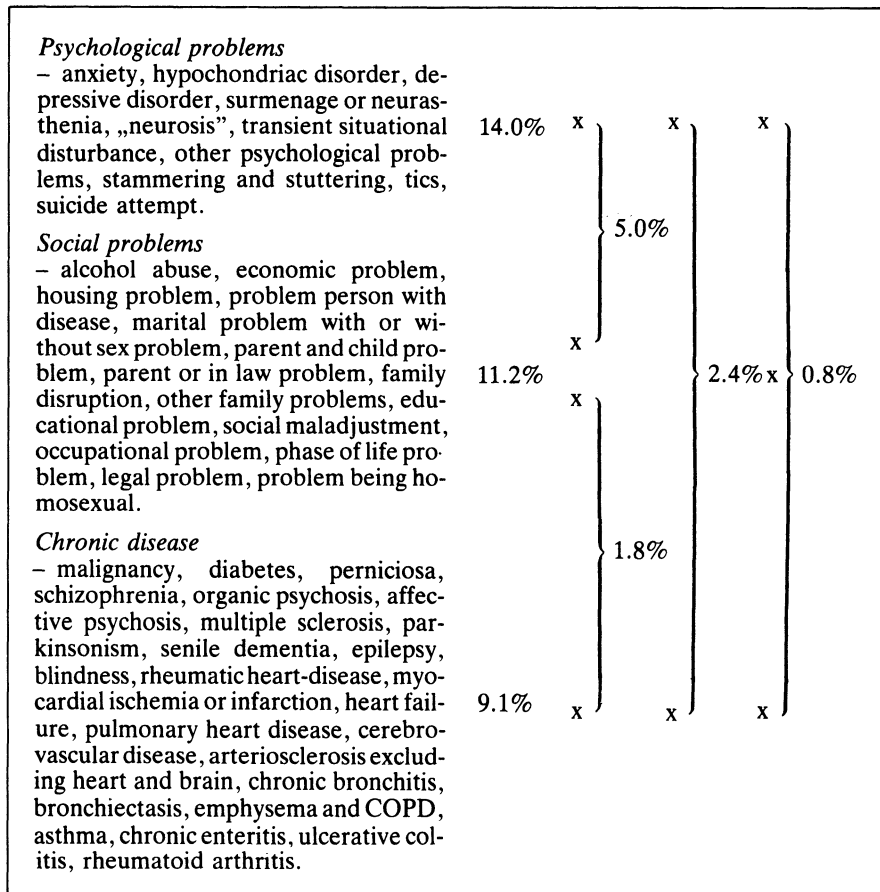


Figure 6. Sex/age distribution of all patients in the practice for the complete first year (basic population). N = 18,137.

MONITORING PROJECT		--- STATISTICS ---		DATE 30-04-80	PAGE 1
-- M A L E --				- F E M A L E -	
MALE TOTAL NO				FEMALE TOTAL NO	
		100			1
		98			3
		96		0,1	0,1
		94 X		0,1	0,1
0,1	2	92 X		0,2	0,1
0,1	5	X 90 XX		0,4	0,2
0,1	9	XX 88 XXXX		0,5	0,3
0,2	0,1	19		0,9	0,5
0,4	0,2	38		1,2	0,6
0,4	0,2	37		1,4	0,7
0,7	0,3	57		1,6	0,8
0,8	0,4	74		1,8	0,9
0,9	0,5	83		1,8	0,9
1,1	0,5	93		2,0	1,0
1,2	0,6	104		1,9	1,0
1,3	0,7	118		2,0	1,0
1,6	0,8	139		2,4	1,3
1,8	0,9	157		2,4	1,2
1,8	0,9	158		2,1	1,1
1,7	0,8	150		2,3	1,2
1,9	0,9	165		2,7	1,4
2,5	1,2	219		2,7	1,4
2,0	1,0	179		2,7	1,4
2,5	1,2	217		2,6	1,3
2,6	1,3	229		2,5	1,2
2,5	1,2	219		2,8	1,4
2,8	1,4	247		2,5	1,2
2,5	1,2	223		2,5	1,2
2,5	1,2	218		2,7	1,3
2,7	1,3	240		2,8	1,3
2,8	1,3	244		3,0	1,4
3,0	1,4	261		2,9	1,4
2,9	1,4	257		2,8	1,4
2,8	1,4	249		3,0	1,4
3,5	1,7	309		2,3	1,1
3,0	1,4	261		2,4	1,2
2,3	1,1	198		2,5	1,2
2,4	1,2	213		2,8	1,3
2,5	1,2	216		3,1	1,5
2,8	1,3	241		3,7	1,8
3,1	1,5	276		4,3	2,1
3,7	1,8	321		3,7	1,8
3,7	1,8	325		3,6	1,7
4,3	2,1	374		3,1	1,5
3,7	1,8	322		2,7	1,3
3,6	1,7	314		2,0	1,0
3,1	1,5	271		2,1	1,0
2,7	1,3	238		1,2	0,6
2,0	1,0	179			
2,1	1,0	183			
1,2	0,6	107			

TOTAL : 48,3 %	MALE	FEMALE	TOTAL	TOTAL : 51,7 %
NUMBER : 8.763	37	40	38	NUMBER : 9.374

SCALE : ONE X = 8 PEOPLE

consistent with earlier experience (Lamberts 1974/75 and 1979).

Only face-to-face contacts with the patient lead to classification of problems. At each encounter, a maximum of three diagnoses can be made (figure 2). The doctor's, not the patient's opinion about the reason for the visit is classified (Reasons for contact).

We use ICHPPC-2 with seventeen modifications of the original rubrics and with twelve additional rubrics. Most changes are intended to clarify the three-axial structure or enhance the applicability of the classification under our working conditions. Four additional elements are incorporated in each classification of a problem:

- When a problem already presented before the start of the project (1st May 1979), is encountered for the first time after this date, it is coded „old-new” (11.3 percent of all problems presented). When it is presented for the

first time it is coded „new” (57.4 percent of all problems). Any repeat contact is coded „old” (31.4 percent of all problems).

- When the doctor is convinced that the classification states the patient's problem correctly, it is coded „sure” (figure 9). It should be pointed out that the coding doctor can be certain of a vague diagnosis (e.g. abdominal pain). When he is not sure that the classification is correct, he codes „not sure”; 16.5 percent of all diagnoses are not sure in the first instance (figure 9). About 30 percent of these gain a higher level of certainty when later modified.

- Each encounter enables the doctor to modify the diagnoses already made. The encounter form makes this mutation very easy (figure 2). A classification can be modified without seeing the patient, using an „administrative” encounter form.

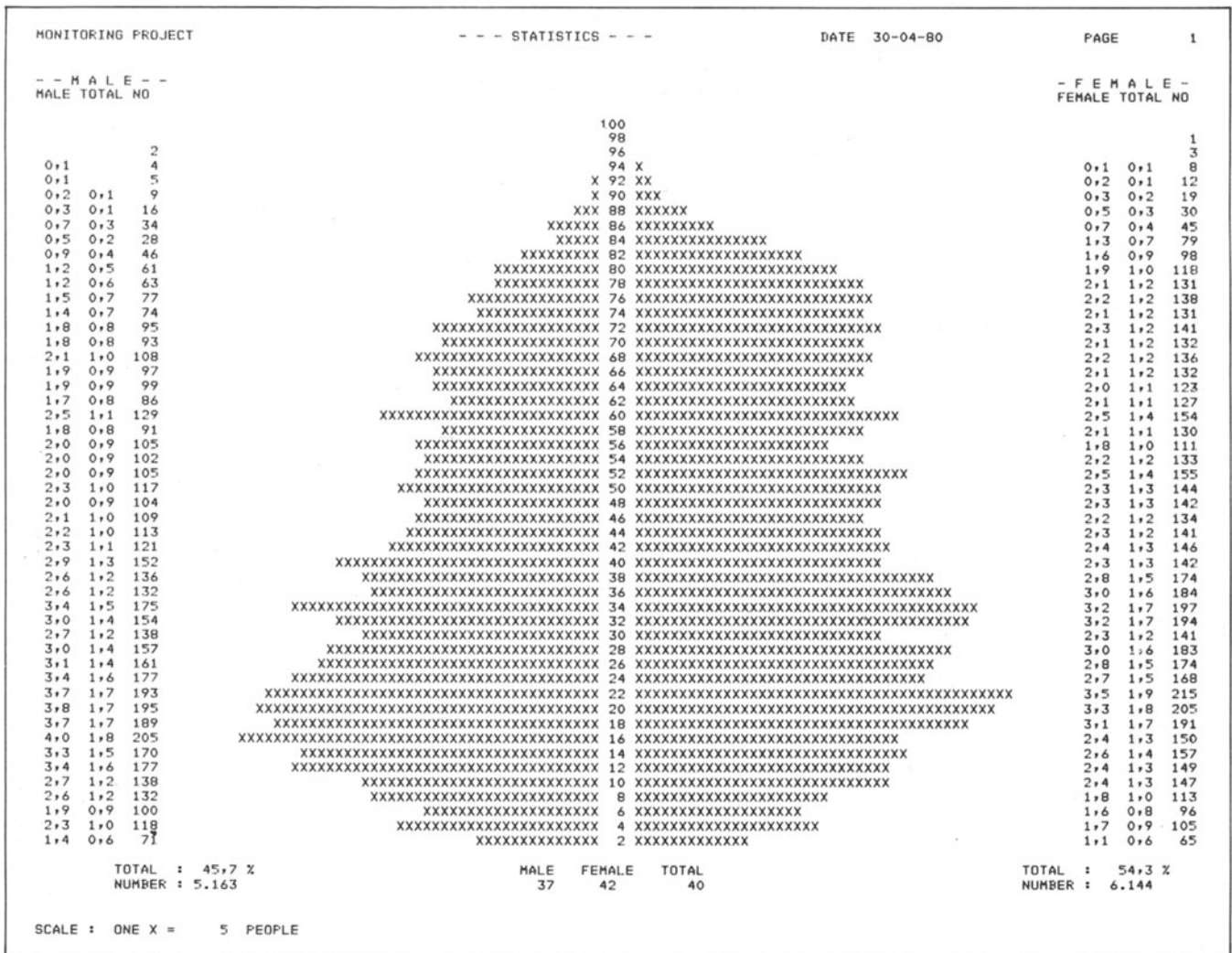
- Together with the certainty of classification, the nature of the doctor's

action is coded: defensive or not. Defensive behavior is coded when the doctor acts differently because he does not feel safe at that moment with that patient and that problem, fearing disagreement or criticism if he would act otherwise (e.g. in a non-defensive way). Defensive action is indicated in 2.1 percent of all problems, which seems rather limited. The inter-doctor variation in this respect, however, is considerable (maximum 8.3 percent, minimum 0.9 percent). Detailed analysis is required to shed light on this intriguing phenomenon.

Coding of the general practitioner's professional behavior

The coding system used in the project was agreed on by the members of the monitoring group, and is the best compromise in describing professional behavior. For each problem, two separate therapies, two separate „referrals

Figure 7. Sex/age distribution of all nationally insured patients in basic population.



inside” and one „referral outside” can be coded (figure 2). Samples of the weekly standard output represent some of the codes we use (figures 10, 11 and 12).

Figure 9 summarizes some aspects of professional behavior during the first year. For 39.5 percent of all problems, no therapy was coded; this implies that, according to the doctor, no therapeutic action of the kind coded in figure 10 was taken.

„Referral inside” implies actions by others than the general practitioner but inside the boundaries of Dutch primary health care (figures 9 and 12). Diagnostic procedures are included together with referrals for treatment by members of the primary health care system. Referral inside takes place for 11.5 percent of all problems, which implies that 10,377 referrals were made in one year to serve the active population for a diagnostic purpose and 2521 to obtain therapy.

Referrals outside imply actions by specialists, categorized institutions and hospitals (figure 12). For 3.9 percent of all problems, the advice of a specialist is sought. In the first year the active population was referred 3589 times (17.7 referrals per 1000).

All figures are limited to actual referral of the patient during the encounter which is coded. This implies that our figures do not represent the total utilization by a certain population of, for example, specialist care, care by a district nurse or any other form of health care.

Another aspect of the professional behavior of general practitioners is found in parameters describing work load (figure 13).

Evidently a variety of factors can influence individual figures, and their impact should be ascertained before any conclusion on an individual doctor’s professional behavior is warranted. This arti-

cle presents an aggregated picture of the substance of general practice as it was actually available to about 20,330 people. It does not analyse differences between individual doctors.

Training in the use of the classification and coding system

It is essential for the use of ICHPPC-2 or any other coding system that all group members agree on the way it should be applied. In our case, repeated and detailed group discussions were a major training for reaching agreement. Apart from this, fifty fictional patient-doctor encounters were prepared on paper. All group members were requested to code each paper-patient on an encounter form. The cases were designed so as to overrepresent the complexities and difficulties which can arise with the complicated system used. The group discussed all cases and decided on the correct solution for each

Figure 8. Sex/age distribution of all private patients in the basic population.

MONITORING PROJECT		--- STATISTICS ---		DATE 30-04-80	PAGE 1
-- M A L E --				- F E M A L E -	
MALE	TOTAL NO			MALE	TOTAL NO
	1	100			
		98			
		96			
		94		0,1	2
		92			
		90			4
		88		0,1	1
0,1	3	X	B6 X	0,2	0,1 6
0,1 0,1	4	XX	B4 XX	0,3	0,1 9
0,3 0,1	9	XX	B2 XXX	0,4	0,2 13
0,3 0,2	11	XXX	B0 XXX	0,5	0,2 15
0,4 0,2	13	XXXX	78 XXXXX	0,7	0,3 22
0,6 0,3	20	XXXX	76 XXXXX	0,9	0,4 29
0,4 0,2	16	XXXXXX	74 XXXXXX	1,0	0,5 31
0,8 0,4	30	XXXXXX	72 XXXXXX	0,9	0,4 28
0,6 0,3	23	XXXXXXXXXX	70 XXXXXXXX	1,2	0,6 38
1,3 0,7	46	XXXXXXXXXX	68 XXXXXXXX	1,5	0,7 48
1,4 0,7	49	XXXXXXXXXX	66 XXXXXXXX	1,4	0,7 46
1,7 0,9	61	XXXXXXXXXX	64 XXXXXXXX	2,0	0,9 64
1,4 0,7	51	XXXXXXXXXX	62 XXXXXXXX	1,5	0,7 48
2,2 1,2	79	XXXXXXXXXX	60 XXXXXXXX	2,3	1,1 75
2,5 1,3	90	XXXXXXXXXX	58 XXXXXXXX	2,8	1,3 92
2,4 1,3	88	XXXXXXXXXX	56 XXXXXXXX	2,8	1,3 90
3,1 1,6	112	XXXXXXXXXX	54 XXXXXXXX	2,7	1,3 87
3,5 1,9	127	XXXXXXXXXX	52 XXXXXXXX	3,0	1,4 96
3,2 1,7	114	XXXXXXXXXX	50 XXXXXXXX	3,3	1,6 108
3,6 1,9	130	XXXXXXXXXX	48 XXXXXXXX	3,1	1,5 101
3,3 1,7	119	XXXXXXXXXX	46 XXXXXXXX	2,7	1,3 88
3,0 1,6	109	XXXXXXXXXX	44 XXXXXXXX	3,5	1,6 112
3,5 1,9	127	XXXXXXXXXX	42 XXXXXXXX	3,3	1,6 108
3,4 1,8	123	XXXXXXXXXX	40 XXXXXXXX	2,6	1,2 84
3,0 1,6	109	XXXXXXXXXX	38 XXXXXXXX	2,6	1,2 84
3,4 1,8	121	XXXXXXXXXX	36 XXXXXXXX	3,3	1,5 105
3,3 1,7	117	XXXXXXXXXX	34 XXXXXXXX	5,0	2,4 161
3,7 2,0	134	XXXXXXXXXX	32 XXXXXXXX	2,8	1,3 89
3,0 1,6	107	XXXXXXXXXX	30 XXXXXXXX	2,3	1,1 75
1,7 0,9	60	XXXXXXXXXX	28 XXXXXXXX	2,1	1,0 67
1,6 0,8	56	XXXXXXXXXX	26 XXXXXXXX	1,7	0,8 54
1,5 0,8	55	XXXXXXXXXX	24 XXXXXXXX	1,4	0,7 46
1,8 0,9	64	XXXXXXXXXX	22 XXXXXXXX	1,9	0,9 60
2,3 1,2	83	XXXXXXXXXX	20 XXXXXXXX	3,2	1,5 103
3,5 1,8	126	XXXXXXXXXX	18 XXXXXXXX	4,1	1,9 132
3,8 2,0	136	XXXXXXXXXX	16 XXXXXXXX	4,2	2,0 135
4,7 2,5	169	XXXXXXXXXX	14 XXXXXXXX	4,0	1,9 129
4,2 2,2	152	XXXXXXXXXX	12 XXXXXXXX	4,6	2,2 149
3,8 2,0	137	XXXXXXXXXX	10 XXXXXXXX	3,5	1,7 114
3,7 1,9	133	XXXXXXXXXX	8 XXXXXXXX	3,0	1,4 98
2,9 1,6	106	XXXXXXXXXX	6 XXXXXXXX	2,5	1,2 82
2,2 1,2	79	XXXXXXXXXX	4 XXXXXXXX	2,0	1,0 65
1,8 1,0	65	XXXXXXXXXX	2 XXXXXXXX	1,2	0,6 38
1,0 0,5	36	XXXXXXXXXX			
TOTAL :	52,7 %	MALE	FEMALE	TOTAL	TOTAL :
NUMBER :	3.600	36	35	36	NUMBER :
					47,3 %
					NUMBER :
					3.230
SCALE :	ONE X =	4	PEOPLE		

case. This implied in many instances that not one but several answers were considered correct, while a more differentiated classification was accepted in some cases. An example of the cases used is given by the following:

During the fourth encounter with Mr. C. it appears that physiotherapy did not help him very much. Mr. C. is anxious and feels he might suffer from a slipped disc. Repeated physical examination – in full agreement with the X-rays – shows no sign of this. Mr. C. is not satisfied and he is referred to an orthopedic surgeon. Apart from this he now complains about his working conditions and vague precordial pain. He is afraid of a myocardial infarction. The physical examination confirms the suspicion that intercostal myalgia is the reason for the pain. Nevertheless an ECG is ordered. The problems at work are briefly discussed. While leaving the consultation room, Mr. C. informs his doctor that his wife is

now on national insurance and no longer a private patient.

With these fifty cases, a minimum of 420 codes and classifications were introduced, with 124 additional variations. The average number of mistakes made was 49.5 (SD 13.7). Half these mistakes (4.6 percent) were „real” mistakes (e.g. wrong classifications), the other half (4.5 percent) were missing diagnoses. Comparison of the results in the first 25 with those in the second 25 cases revealed no systematic improvement. It is realistic to estimate the error rate at less than 4.5 percent, while underreporting can explain the missing of another 4.5 percent or less.

On three separate occasions the reliability of the input procedure was ascertained. The three students performing this task proved to make 0, 0.7 and 1.3 mistakes per 100 records, (nine fields per record), respectively.

Standardized computer output

The weekly provision of relevant information is essential for the project. It should be attractive, easy-to-read, pointing out the essentials, and compatible with our wish to collect more aggregated data for statistical analysis. Some output examples are presented here (figures 10-16).

The information gathered with the encounter forms is returned weekly to the members of the monitoring group in a fixed format. The same format, however, can be used for any period or any specification one wishes (e.g. all patients with hypertension, all X-rays, all out-of-hour contacts).

Software has been developed to compute sex/age distributions for any diagnosis, in any population defined by the available selection criteria. These distributions are printed after modification and „cleaning” of all diagnoses. In addition to the software designed for the

Figure 9. Summary of results (all encounters during one year—active population). N = 20,330.

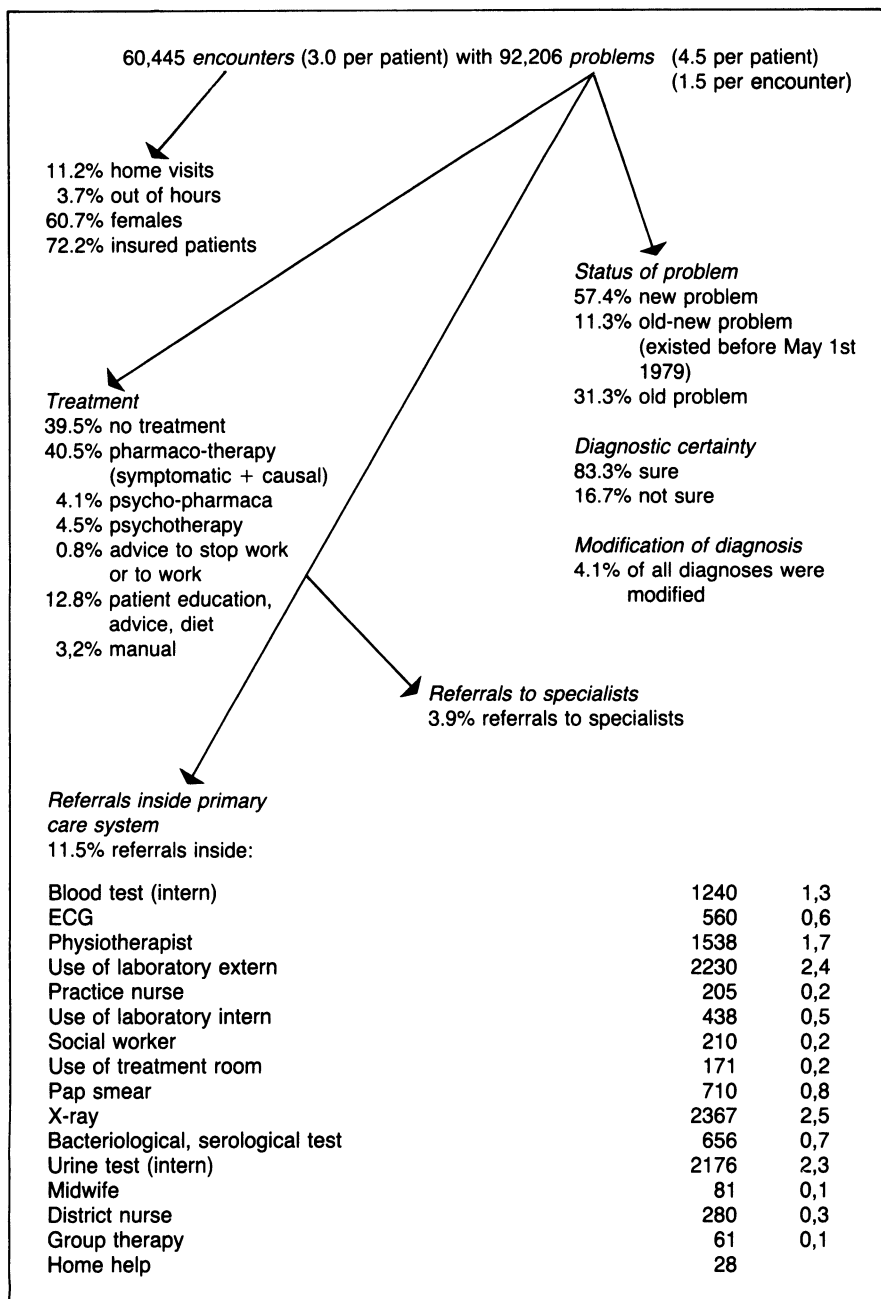


Figure 10. Example of standard output: therapy.

THERAPY	NUMBER	PERCENTAGE
NO TREATMENT	246	43,8
SYMPTOMATIC PHARMACOLOGICAL	122	21,7
PSYCHOPHARMACOLOGICAL	24	4,3
CAUSAL PHARMACOLOGICAL	84	14,9
CONSULTATION IN TEAM	6	1,1
PSYCHOTHERAPY	19	3,4
ADVICE TO WORK	2	0,4
ADVICE TO STOP WORK	3	0,5
OTHER ADVICE, EDUCATION, DIET ETC.	69	12,3
MANUAL AND TECHNICAL PROCEDURES	14	2,5

Figure 11. Example of standard output: referrals inside.

REFERRALS INSIDE	NUMBER	PERCENTAGE
NIETS	495	88,1
BLOOD TEST (INTERN)	9	1,6
EKG	4	0,7
PHYSIOTHERAPIST	9	1,6
USE OF LABORATORY EXTERN	14	2,5
USE OF LABORATORY INTERN	5	0,9
SOCIAL WORKER	2	0,4
PAP SMEAR	1	0,2
X-RAY	17	3,0
BACTERIOL., SER. TEST	5	0,9
URINE TEST (INTERN)	11	2,0

Figure 12. Example of standard output: referrals outside.

REFERRALS OUTSIDE	NUMBER	PERCENTAGE
NIETS	938	96,3
CARDIOLOGIST	1	0,1
SURGEON	6	0,6
DERMATOLOGIST	4	0,4
INTERNIST	1	0,1
E-N-T SPECIALIST	6	0,6
PEDIATRICIAN	1	0,1
SPECIALIST LUNG DISEASES	1	0,1
NEUROLOGIST	1	0,1
EYE SURGEON	4	0,4
UROLOGIST	2	0,2
ABORTION CLINIC	1	0,1
CATEGORICAL INSTITUTES	1	0,1
ACUTE ADMISSION GYNAECOLOGIST	1	0,1
ACUTE ADMISSION INTERNIST	3	0,3
ACUTE ADMISSION NEUROLOGIST	1	0,1
NURSING-HOME SOMATIC DISEASES	1	0,1

project, a data-file utility (DFU) was provided for the computer; this proved to be very helpful because it can be operated without outside assistance.

Experience during the first year

The first year of recording focused on the collection of stabilized data, describing the behavior of the group and the possible changes in it as elicited by audit and information provided. Four phases are distinguished:

During the first nine weeks, the group members received no information at all

to make sure that stabilized information could be collected without risk of distortion by untimely feed-back.

After nine weeks each member received his output of the first seven weeks, and from then on each week. Each participant was requested to complete a questionnaire meant to facilitate description of his professional behavior, without comparing his figures with those of other group members. Most members were surprised by at least some of the results. They were satisfied with the format of the output, although some clarifications proved to be necessary. All

members pointed out those aspects of their professional behavior (as represented in the figures we produced) which they considered satisfactory and those they would like to reconsider or to change.

After twenty weeks, the information on all members was presented to the group, thus changing from self-audit to group-audit (Froom; Hulka et al.).

At four meetings we discussed the question whether aggregated information is useful in setting general standards of professional behavior and thus of audit. We decided that, to audit professional

behavior, very detailed information is essential (e.g. information on one or more diseases, specific treatment or any other specific question). Aggregated material is very useful but only in a limited way. Only in exceptional cases is it possible to point out a significant digression from generally accepted and rather wide limits which could warrant a negative opinion of someone's behavior. No such exceptions were met in our aggregated data; this is not at all surprising, because the group consists of selected, highly motivated, well-trained and enthusiastic doctors with a special interest in the field under scrutiny, which in this case is group-audit.

The first analysis shows that utilization varies considerably throughout the year (figures 17 and 18). The percentages of problems with a referral „inside” or a referral „outside” for the actual population prove to be practically constant (figure 19). Figures 17 and 18 show the well-known seasonal variations (August, Christmas): figure 19 illustrates the effect of starting a project at a certain moment in time (the respective percentages of new, old-new and old problems).

Figure 13. Example of standard output: work load.

NUMBER OF CONTACTS	:	CONSULTATIONS	:	481	73,9
		VISITS	:	85	13,1
		CONSULTATIONS OUT OF HOURS	:	29	4,5
		VISITS OUT OF HOURS	:	44	6,8
		ADMINISTRATIVE	:	12	1,8
		TOTAL INCL. ADMINISTRATIVE	:	651	100,0
NUMBER OF CONTACTS	:	MALE PATIENTS	:	268	41,9
		FEMALE PATIENTS	:	371	58,0
		TOTAL EXCL. ADMINISTRATIVE	:	639	100,0
NUMBER OF CONTACTS	:	PRIVAT	:	198	31,0
		INSURED	:	441	69,0
		TOTAL EXCL. ADMINISTRATIVE	:	639	100,0
NUMBER OF CONTACTS	:	PATIENTS ON OWN LIST	:	399	62,4
		PATIENTS ON OTHER LISTS	:	240	37,6
		TOTAL EXCL. ADMINISTRATIVE	:	639	100,0
NUMBER OF CLASSIFICATIONS	:	SURE	:	747	77,7
		NOT SURE	:	190	19,8
		SURE AND DEFENSIVE	:	12	1,2
		NOT SURE AND DEFENSIVE	:	13	1,4
		TOTAL	:	962	100,0
NUMBER OF CLASSIFICATIONS	:	NEW	:	580	60,3
		OLD BUT FIRST TIME	:	52	5,4
		OLD	:	330	34,3
		TOTAL	:	962	100,0
MUTATIONS CLASSIFICATION	:	NO CHANGE	:	910	94,6
		NOT SURE --> SURE	:	17	1,8
		SURE --> NOT SURE	:	3	0,3
		CHANGE OF CONTENT ,SURE	:	21	2,2
		CHANGE OF CONTENT ,NOT SURE	:	10	1,0

Figure 14. Example of standard output: distribution of classifications.

MONITORING PROJECT		ALI. CLASSIFICATIONS										DATE 31-12-79	PAGE 2		
NUMBER	CLASSIFICATION	NEW.	OLD/FIRST	OLD.	MALE	FEMALE	PRIVAT	INSURED	SURE	N-SURE	D-SURE	ND-SURE	PRACTICE.	OWN	OTHERS
090	MIGRAINE	2				2	1	1	2				1	1	
091	OTHER NERVOUS SYSTEM DISEASES NEC	2			2	1	3	2	2	1	3		2	2	
092	CONJUNCTIVITIS & OPHTHALMIA	6	1	1	6	3	4	3	4	6	1		3	4	
093	EYELID INFECTIONS/CHALAZION	4		1	3	3	1	4	4				4		
094	REFRACTIVE ERRORS	3		1	2	2	3	2	1				3		
100	OTITIS EXTERNA	4		1	2	3	1	4	5				4	1	
101	ACUTE OTITIS MEDIA	5		3	5	3	4	4	8				4	4	
103	EUSTACHIAN BLOCK OR CATARRH	3		1	4	2	2	3	1				3	1	
104	VERTIGINOUS SYNDROMES	2		1	3	2	3	1	2				2	1	
105	DEAFNESS,PARTIAL OR COMPLETE	2		2	1	3	2	2	3	1			4		
106	WAX IN EAR	3		2	3	2	2	3	5				3	2	
107	OTHER EAR & MASTOID DISEASES	1		1	1	1	1	1	1				1		
109	AC MYOCARD INFARCT/SUBAC ISCHEMIA	4		1	5	3	2	1	4				2	3	
110	CHRONIC ISCHEMIC HEART DISEASE	1		3	4	4	4	2	2				2	2	
112	HEART FAILURE,RIGHT/LEFT SIDED	5		9	6	8	2	12	12	2			8	6	
113	ATRIAL FIBRILATION OF FLUTTER	1		3	2	4	1	3	2	5			4	1	
114	PAROXYSMAL TACHYCARDIA	1		2	1	1	1	2	1	1			2		
115	ECTOPIC BEATS, ALL TYPES	1				1	1	1	1	1			1		
116	HEART MURMER NEC, NYD	1		1	1	1	1	1	1				1		
119	ELEVATED BLOOD-PRESSURE	2		1	3	3	1	2	2	3	1		3	1	
120	HYPERTENSION	2		2	29	14	19	7	26	32	1		17	16	
123	TRANSIENT CEREBRAL ISCHEMIA	1		1	2	2	2	2	2				2		
124	OTHER CEREBROVASCULAR DISEASE	2		1	1	2	2	3	3				1	2	
125	ATHEROSCLEROSIS EXCL HEART & BRAIN	1				1	1	1	1				1		
126	OTHER ARTERIAL DISEAS EXCL ANEURISM	1			1	1	1	1	1				1		
128	PHLEBITIS & THROMBOPHLEBITIS	1		2	1	2	2	3	3				2	1	
129	VARICOSE VEINS OF LEGS	1		2	1	1	3	3	1	4			2	2	
130	HEMORRHOIDS	2		1	3	3	1	2	3				3		
132	OTHER PERIPHERAL VESSEL DISEASES	1				1	1	1	1				1		
133	ACUTE UPPER RESPIR TRACT INFECTION	46		4	22	28	20	30	37	8	5		28	22	
134	SINUSITIS, ACUTE & CHRONIC	16		3	5	14	10	9	16	3			14	5	
135	ACUTE TONSILLITIS & QUINSY	10		4	11	3	10	4	11	2	1		7	7	
137	LARYNGITIS & TRACHEITIS, ACUTE	5			4	1	2	3	5				2	3	
138	BRONCHITIS & BRONCHIOLITIS, ACUTE	10		6	8	8	3	13	16				9	7	
139	INFLUENZA	2			1	1	1	2	1	1			1	1	
140	PNEUMONIA	2		2	1	3	3	4	1	3			4		
142	BRONCHITIS,CHRONIC & BRONCHIECTASIS	1		1	5	6	1	6	5	2			5	2	
143	EMPHYSEMA & COPD	1		1	1	1	1	1	1				1		
144	ASTHMA	5		2	3	4	2	5	6	1			1	6	
145	HAY FEVER	1			1	1	1	1	1				1		
147	OTHER RESPIRATORY SYSTEM DISEASES	2		1	2	1	1	2	3				3		
148	TEETH & SUPPORT STRUCTURE DISEASES	1			1	1	1	1	1				1		
149	MOUTH,TONGUE,SALIVARY GLAND DISEASES	2			1	1	1	1	2				2		
150	ESOPHAGEAL DISEASES	1			1	1	1	1	1				1		
151	DUODENAL ULCER W/WO COMPLICATIONS	2			2	4	2	2	3	1				4	
153	OTHER STOMACH & DUODEN DIS/DISORD	4		1	3	2	1	4	4	1			5		
154	APPENDICITIS, ALL TYPES	1			2	2	2	2	1	1			1	1	
155	INGUINAL HERNIA W/WO OBSTRUCTION	3		1	3	1	3	1	4				3	1	
158	DIVERTICULAR DISEASE OF INTESTINE	1			2	2	1	3	3				1	2	
159	IRRIT BOWEL SYNDR/INTEST DISOR. NEC	8		1	4	2	11	5	8	9	2	1	1	5	8

Figure 15. Example of standard output: therapy per diagnosis.

MONITORING PROJECT		--- ALL CLASSIFICATIONS ---		DATE 31-12-79	PAGE	3
NUMBER	CLASSIFICATION	NUMBER	THERAPY	TOTAL	NUMBER OF CLASSIFICATIONS	
101	ACUTE OTITIS MEDIA		NO TREATMENT	4		
		1	SYMPTOMATIC PHARMACOLOGICAL	2		
		3	CAUSAL PHARMACOLOGICAL	4	8	
103	EUSTACHIAN BLOCK OR CATARRH	1	SYMPTOMATIC PHARMACOLOGICAL	2		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	3	4	
104	VERTIGINOUS SYNDROMES		NO TREATMENT	1		
		1	SYMPTOMATIC PHARMACOLOGICAL	2		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	1	3	
105	DEAFNESS, PARTIAL OR COMPLETE		NO TREATMENT	4		
106	WAX IN EAR	9	MANUAL AND TECHNICAL PROCEDURES	5	5	
107	OTHER EAR & MASTOID DISEASES	1	SYMPTOMATIC PHARMACOLOGICAL	1	1	
109	AC MYOCARD INFARCT/SUBAC ISCHEMIA		NO TREATMENT	1		
		1	SYMPTOMATIC PHARMACOLOGICAL	1		
		3	CAUSAL PHARMACOLOGICAL	2		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	1	5	
110	CHRONIC ISCHEMIC HEART DISEASE		NO TREATMENT	3		
		3	CAUSAL PHARMACOLOGICAL	1	4	
112	HEART FAILURE, RIGHT/LEFT SIDED		NO TREATMENT	4		
		1	SYMPTOMATIC PHARMACOLOGICAL	1		
		3	CAUSAL PHARMACOLOGICAL	5		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	5	14	
113	ATRIAL FIBRILATION OF FLUTTER		NO TREATMENT	2		
		3	CAUSAL PHARMACOLOGICAL	1		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	2	5	
114	PAROXYSMAL TACHYCARDIA	3	CAUSAL PHARMACOLOGICAL	1		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	1	2	
115	ECTOPIC BEATS, ALL TYPES		NO TREATMENT	1	1	
116	HEART MURMUR NEC, NYD		NO TREATMENT	1	1	
119	ELEVATED BLOOD-PRESSURE		NO TREATMENT	2		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	2	4	
120	HYPERTENSION		NO TREATMENT	8		
		3	CAUSAL PHARMACOLOGICAL	21		
		6	ADVICE TO WORK	1		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	5	33	
123	TRANSIENT CEREBRAL ISCHEMIA		NO TREATMENT	2	2	
124	OTHER CEREBROVASCULAR DISEASE		NO TREATMENT	1		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	2	3	
125	ATHEROSCLEROSIS EXCL HEART & BRAIN	8	OTHER ADVICE, EDUCATION, DIET ETC.	1	1	
126	OTHER ARTERIAL DISEASES EXCL ANEURISM	8	OTHER ADVICE, EDUCATION, DIET ETC.	1	1	
128	PHLEBITIS & THROMBOPHLEBITIS	1	SYMPTOMATIC PHARMACOLOGICAL	2		
		2	PSYCHOPHARMACOLOGICAL	1	3	
129	VARICOSE VEINS OF LEGS		NO TREATMENT	2		
		1	SYMPTOMATIC PHARMACOLOGICAL	1		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	1	4	
130	HEMORRHOIDS	1	SYMPTOMATIC PHARMACOLOGICAL	3	3	
132	OTHER PERIPHERAL VESSEL DISEASES	8	OTHER ADVICE, EDUCATION, DIET ETC.	1	1	
133	ACUTE UPPER RESPIR TRACT INFECTION		NO TREATMENT	5		
		1	SYMPTOMATIC PHARMACOLOGICAL	32		
		3	CAUSAL PHARMACOLOGICAL	12		
		7	ADVICE TO STOP WORK	1		
		8	OTHER ADVICE, EDUCATION, DIET ETC.	6	50	

Figure 16. Example of standard output: modification in diagnoses (classification 2 was modified; classification 1 is the new diagnosis).

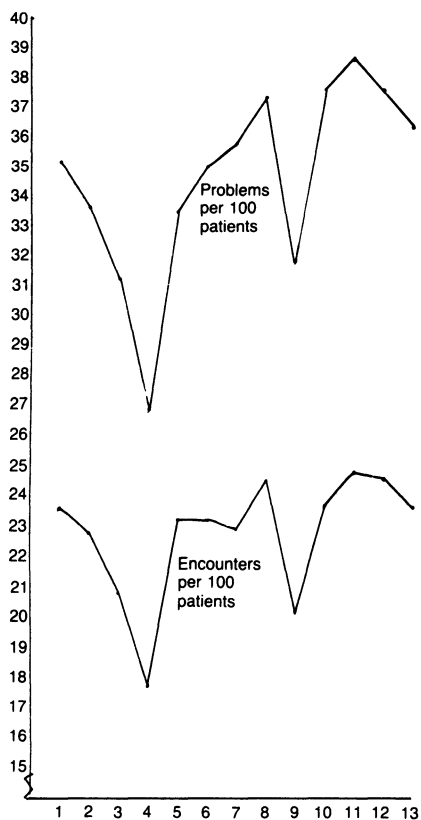
MONITORING PROJECT		--- ALL CLASSIFICATIONS ---		DATE 31-12-79	PAGE	1
NUMBER	CLASSIFICATION 1	SURE	NUMBER CLASSIFICATION 2	SURE	TOTAL	
2	PRESUMED INFECTIOUS INTESTIN DISEAS	1	159 IRRIT BOWEL SYNDR/INTEST DISOR NEC	3	1	
14	OTHER VIRAL EXANTHEMS	1	291 FEVER OF UNDETERMINED CAUSE	1	1	
22	SYPHILIS, ALL SITES & STAGES	1	9 CHICKENPOX	0	1	
63	LYMPHADENITIS, CHRONIC/NON-SPECIFIC	1	91 OTHER NERVOUS SYSTEM DISEASES NEC	1	1	
72	DEPRESSIVE DISORDER	0	273 ANOREXIA	0	1	
90	MIGRAINE	0	274 NAUSEA/VOMITING	0	1	
91	OTHER NERVOUS SYSTEM DISEASES NEC	1	235 CERVICAL SPINE SYNDROMES	0	1	
93	EYELID INFECTIONS/CHALAZION	0	92 CONJUNCTIVITIS & OPHTHALMIA	0	1	
104	VERTIGINOUS SYNDROMES	0	256 DIZZINESS & GIDDINESS	0	1	
109	AC MYOCARD INFARCT/SUBAC ISCHEMIA	0	110 CHRONIC ISCHEMIC HEART DISEASE	1	1	
110	CHRONIC ISCHEMIC HEART DISEASE	1	262 CHEST PAIN	0	1	
120	HYPERTENSION	0	119 ELEVATED BLOOD-PRESSURE	0	1	
133	ACUTE UPPER RESPIR TRACT INFECTION	0	269 DYSPNEA	0	1	
134	SINUSITIS, ACUTE & CHRONIC	1	133 ACUTE UPPER RESPIR TRACT INFECTION	0	1	
140	PNEUMONIA	0	20 URAL INFECTION NOS	1	1	
144	ASTHMA	0	138 BRONCHITIS & BRONCHIOLITIS, ACUTE	0	1	
153	OTHER STOMACH & DUODEN DIS/DISORD	0	151 DUODENAL ULCER W/WO COMPLICATIONS	1	1	
175	BENIGN PROSTATIC HYPERTROPHY	0	170 CYSTITIS & URINARY INFECTION NOS	3	1	
213	ECZEMA & ALLERGIC DERMATITIS	0	218 PRURITIS & RELATED CONDITIONS	1	1	
229	OSTEOARTHRITIS & ALLIED CONDITIONS	0	231 ARTHRITIS NEC/DIFF CONN TISS DIS	1	1	
		0	308 FRACTURE PHALANGES FOOT/HAND	1	1	
233	OTHER BURSTITIS & SYNOVITIS	1	234 OTHER NONARTICULAR "RHEUMATISM"	0	1	
245	ACQUIRED DEFORMITY OF LIMBS	0	231 ARTHRITIS NEC/DIFF CONN TISS DIS	1	1	
256	DIZZINESS & GIDDINESS	0	131 POSTURAL HYPOTENSION	1	1	
270	COUGH	1	133 ACUTE UPPER RESPIR TRACT INFECTION	1	1	
300	SIGN, SYMPTOM, ILL DEFINED COND NEC	0	50 DIABETES MELLITUS	1	1	
		0	170 CYSTITIS & URINARY INFECTION NOS	1	1	
316	SPRAIN/STRAIN KNEE & LOWER LEG	0	312 ACUTE/CHRONIC MENISCUS	3	1	
375	HEMATOLOGICAL ABNORMALITY NEC	0	291 FEVER OF UNDETERMINED CAUSE	1	1	
386	ENURESIS PSYCHOGEN	1	170 CYSTITIS & URINARY INFECTION NOS	3	1	
392	SURMENAGE, NEURASTHENIA	0	17 INFECTIOUS MONONUCLEOSIS	1	1	
396	OSTEOARTHRITIS, CERVICAL/THORAC	0	235 CERVICAL SPINE SYNDROMES	0	1	
403	NO PROBLEM FOR G.P.	0	49 HYPOTHYROIDISM, MYXEDEMA, CRETINISM	0	1	
		0	58 IRON DEFICIENCY ANEMIA	1	1	

Figure 20 shows a significant tendency to give „no treatment” for a problem, which appears to be one of the first evident effects of monitoring because this is considered desirable by the group.

After a year, two conclusions can be reached.

● In figures 17-20 the distributions of several variables, computed on a four-weekly basis (thirteen periods), characterize aggregated data for the total group and the actual population. Both on a weekly and on a four-weekly basis the curves were surprisingly stable, taking into account the considerable variation of workload indicators. Therapy indicators (figure 20) provide a major digression from this general conclusion. Analysing aggregated data, one has to account for some artificial elements. Several indicators – e.g. referrals to specialists, pharmacotherapy, work advise, diagnostic certainty – were ideally set at a level different from the actual findings for the group. Only limited indications were encountered (increasing number of problems without treatment), sustaining the hypothesis that the provision of aggregated information and the subsequent audit produce

Figure 17. Encounters and problems per 100 active patients in the active population.



immediate changes in the professional behavior of a group of doctors. However, this does not necessarily imply that no changes occurred in the individual case (e.g. regression towards the mean).

● The differences between doctors are considerable. Individual doctors appear to be fairly stable in their habits during the year, notwithstanding these differences. There are only limited indications that the desired individual changes pointed out during the second and the third phase have been achieved at least partially.

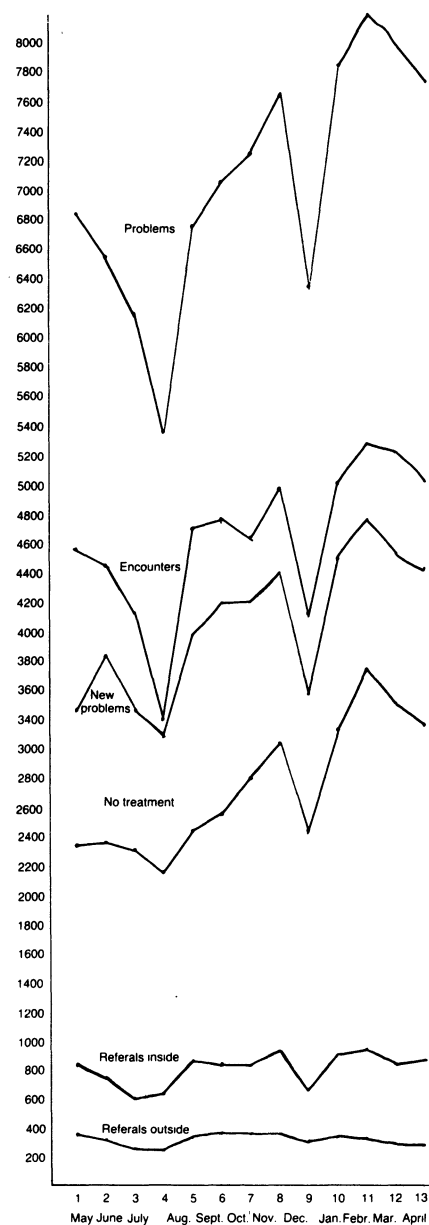
It is difficult to analyze individual differences and thus introduce relevant goals for audit. The paradox of audit is that it seems relatively easy to formulate norms and values regarding professional behavior when factual information is limited. The availability of differentiated information, as in the monitoring project, prevents formulation of rather strict standards in most cases because it appears that the reality of general practice is not only very complicated but also very diversified. This observation is sustained by the fact that most members of the monitoring group were satisfied with most aspects of their performance as represented by the computer output, notwithstanding a variety of minor changes that most members indicated as desirable. Earlier experience with prescribing, referring and problem behavior was consistent with the observation that major differences between general practitioners are not infrequently acceptable to all of them, and that less acceptable differences do not necessarily tend to change by the mere fact they are designated as such.

The fourth phase. After the first six months the strategy for monitoring was discussed again at the start of the fourth phase. It was decided that all members would prepare – in most instances together with one or two other group members – a subject for detailed group discussion. Computer output was considered to be essential for these discussions but not decisive, because the professional behavior of each member is far more complicated than can be reflected in the reduction of information provided by an information system.

The fourth phase covered the latter half of the year. The group paid attention to specific subjects like :

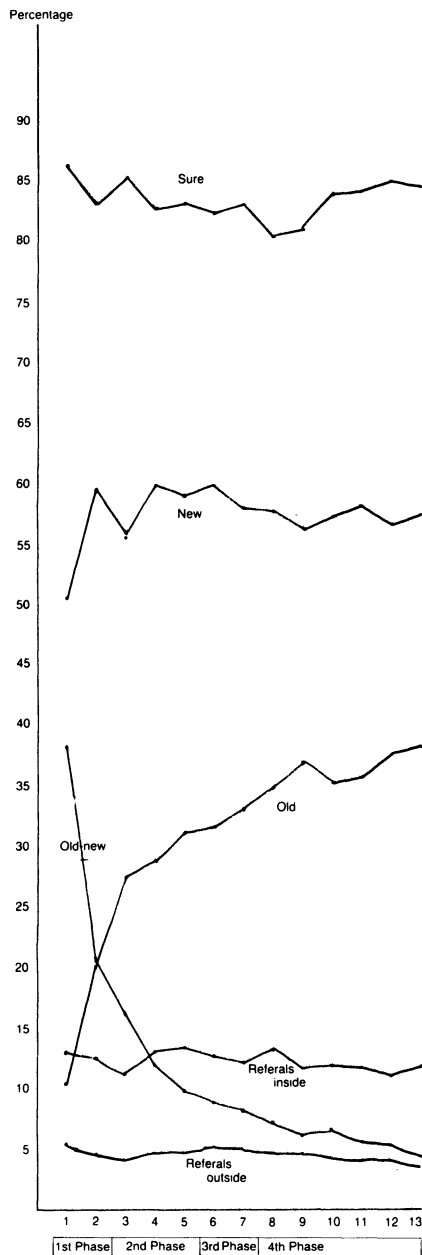
- hypertension, differences in prevalence and treatment in the different practices (figure 21);
- upper respiratory tract infections and anxiety (figure 22);

Figure 18. Utilization per four-week period (active population): number of problems, encounters, new problems, referrals to specialists, referrals to primary care facilities and number of problems without treatment.



- upper respiratory tract infections and treatment;
- sentinel function of the monitoring group for infectious diseases;
- referrals to physiotherapist, district nurse and social worker;
- women with more than five encounters, and their spouses;
- problems in defining ICHPPC-2 categories;
- development of the reason for contact classification;
- problem behavior – the impact of psychological and social problems.

Figure 19. Percentage of problems which are sure, which are new, which lead to a referral.

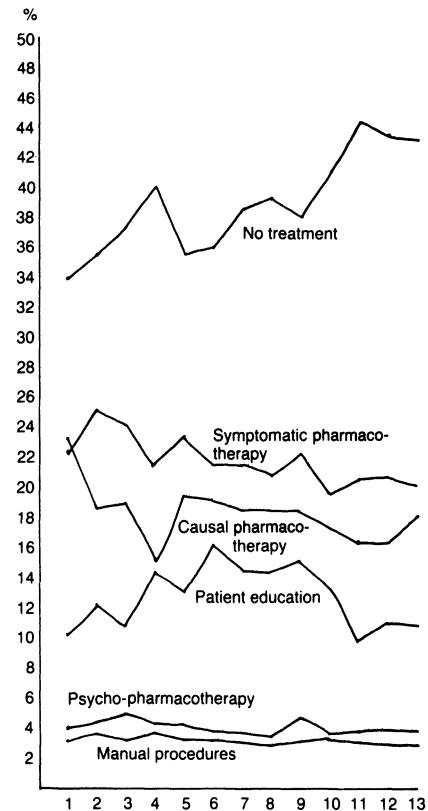


The same pattern was discernible throughout most discussions. The members of the group appear to differ considerably in concepts and behavior, even when the substantial differences in composition of the practice population are taken into account. These differences, however, are primarily perceived as signs of a justifiable variation between doctors. In the majority of discussions, individual considerations proved to be acceptable to the other group members as explanations for differences, without need to change. Only in a few instances (e.g. prescribing antibiotics for upper respiratory tract infections, monitoring the complications of hypertension) was it decided that a change in behavior was warranted, immediately recognizing the fact that such changes can be easily prevented by „external” factors, e.g. social pressure exerted on the doctor by the patient as a consumer.

It can be concluded that the members of the monitoring group at this stage feel both confident of and satisfied with their professional behavior, and are rather tolerant about the considerable interdoctor variation. Differences seem to be experienced as a valued criterion of the art of general practice rather than as a sign of a regrettable lack of professional homogeneity.

Summary. This primary health care monitoring project focuses on the collection, analysis and monitoring of continuous information on all contacts between twelve general practitioners and about 20,300 patients during two years. Results of the first year, covering 60,445 contacts and 92,206 problems, are presented. The first goal of the monitoring project is to study the professional behavior of general practitioners, with emphasis on pos-

Figure 20. Treatment. Percentage of problems without treatment or with certain forms of treatment.



sibilities to change this behavior in a well-defined direction by weekly feed-back on the professional behavior of all individual participants and by group-audit on the basis of factual information. The first experience with this form of audit is presented. The second goal is to analyse morbidity and utilization patterns in a well-defined population, with emphasis on reliability of coding, classification and registration. A first and general impression is given of the substance of general practice as provided by the members of the monitoring group.

Figure 21. Example of standard output: occurrence of hypertension in combination with certain other problems (active population).

MONITORING PROJECT.		LINKAGE DIAGNOSES FIRST PERIOD										DATE 21-05-80	PAGE 9			
DIAGNOSIS 120 HYPERTENSION																
NR. DIAGNOSIS	SURE	0-5	11-15	21-25	31-35	41-45	51-55	61-65	71-75	81-85	91-95	TOTAAL				
		6-10	16-20	26-30	36-40	46-50	56-60	66-70	76-80	86-90	96-100					
50 DIABETES MELLITUS	0	1			1	2	1	3	1	2		11				
55 OBESITY	0			9	4	10	11	9	15	4	4	66				
56 LIPID METABOLISM DISORDERS	0			2	5	7	12	10	5	2	1	44				
80 ALCOHOL ABUSE & ALCOHOLIC PSYCHOSIS	0			1	1	1	1					4				
82 TOBACCO ABUSE	0			3	2	6	1	9	10	4	4	41				
109 AC MYOCARD INFARCT/SUBAC ISCHEMIA	0					2		2	1	1		6				
	1							1		1		2				
110 CHRONIC ISCHEMIC HEART DISEASE	0						1	1	2	1	1	6				
	1							1	1	2		6				
120 HYPERTENSION	0	1		14	11	21	35	39	46	31	28	22	17	9	5	279
	1						2	2	1	1						6
367 OCCUPATIONAL PROBLEM	0			1		1	2	5	1		1		1			12

GENERAL PRACTITIONER : V

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Nota bene

Counseling by psychologists in a medical situation would benefit from an oath of allegiance to the Hippocratic rule that one should always persist in making every possible effort for the good of the patient. (Proposition in: A. P. Messer. Serious eating problems and intractable bed-wetting. [Zeer moeilijk eten en moeilijk beïnvloedbaar bedplassen.] *Thesis Leiden*, 1979.)

The fact that a 4-year-old boy, after a visit to the locum tenens of a specialist, says „It was the same doctor, but with a different head on” is characteristic of the white coat image. (Proposition in: P. E. de Jong. Sick cell nephropathy, new insights into its pathophysiology. *Thesis Groningen*, 1980.)

Self-help

Backgrounds, postulates and problems of a new phenomenon

DR H. A. M. J. TEN HAVE

Although the self-help phenomenon was in the air, it did not come out of the blue. It can be regarded as a consequence of certain social and scientific developments; as a symptom of „larger potential shifts in society’s problems, priorities and solutions”. This paper is a plea for a new balance between professional care, self-care and communal care.

Concept definition

Van Harberden and Lafaille distinguish three features in the self-help phenomenon:

- self-help as ideology;
- self-help as self-treatment;
- self-help as self-help group.

The significance of the term self-help varies as the accent on one of these features varies.

But I hold that it is possible to profit by the art of medicine even without calling in a physician. (Hippocrates, The art. V, 3-4).

Most authors focus on self-help groups and define self-help operationally as that which happens in and about these groups. *Katz and Bender* list the following characteristics:

- spontaneous origin and voluntary participation;
- a common problem or a common need;
- focus on a specific objective: elimination of a problem or need, personal or social change;
- specific means: mutual help on the basis of personal contacts between participants, and personal responsibility for each other;
- the conviction that needs and problems cannot be eliminated by social institutions but must be tackled by the group members themselves.

Whereas self-help groups can be regarded as a collective manifestation of the self-help phenomenon, self-treatment („self-doctoring”) is a more individual undertaking. Both, however, may be regarded as manifestations of a

certain „ideology” – a system of ideas focused on the conviction that one can help oneself, regardless of various professional services. As a source of motivation and inspiration, this self-help ideology as a rule receives but little attention.

A different terminology is used by *Hattinga Verschure* (1977), who distinguishes three contexts of care:

- self-care: the individual meets his own requirements for care;
- communal care: a group of persons look after themselves;
- professional care.

Self-treatment is evidently an aspect of self-care, and a self-help group is one of the circles in which communal care can take shape. The characteristics of communal care as listed by *Hattinga Verschure* (1977) in fact largely correspond with those of self-help groups. Within this system of concepts, therefore, the term self-help would seem to refer to self-care on the one hand, and to communal care on the other.

Backgrounds

Although the self-help phenomenon was in the air, it did not come out of the blue. It can be regarded as a consequence of certain social and scientific developments; as a symptom of „larger potential shifts in society’s problems, priorities and solutions” (*Levin et al.*). The increased interest taken in self-help can be placed in the context of changes which, somewhat schematically and at random, can be classified as follows.

Social changes:

- reduced significance of various primary reference groups or communal