MEDICAL PRACTICE

*General Practice Observed***Anglo-American contrasts in general practice**

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There are still many general practitioners in the state of Iowa despite a great decline in their numbers in the USA as a whole since the war. The proportion of general practitioners to specialists is approximately one-to-one, and unpublished surveys show that two-thirds of the Iowan population identify with a family physician. In the last five years the number of departments of family practice associated with universities and hospital complexes in the USA has grown rapidly, reflecting the mounting interest in this field of medicine. Family practice was recently recognised as a specialty by the American Medical Association.

The National Health Service Act in the United Kingdom established general practice as the method of delivering primary medical care, and every patient in the National Health Service has a family doctor. In the USA a patient can have direct access to secondary specialist services, but this is extremely rare in the UK. In the UK there has been increasing interest in the academic content of general practice in the last few years, which has also resulted in the establishment of several university departments of general practice. In addition, training programmes in teaching practices and hospital complexes are now well established.

Weinerman¹ spells out the desirability and need for international studies of health care systems, particularly of primary medical care. Accordingly, in view of the mounting interest in

both countries in family practice, we thought it interesting to compare the methods of work of a group of general practitioners in north-east England with those of a group of general practitioners in Iowa—a state where family practice has been active continuously and where departments of family practice are flourishing. In terms of durability and tradition, the two groups could be considered to be comparable.

There have been many studies of work load in general practice, especially in England, but comparatively little study of the process of consultation itself and how this varies from one doctor to another. Work load studies of general practice in the USA are comparatively rare. Mechanic² suggests from surveys done in 1966 and 1970 that there are great differences between English and American general practitioners. Horder,³ reporting more recently on French general practitioners, again intimated there were considerable differences between them and their English equivalents. These studies, however, have not gone into the process of consultation in any depth, and it is to this aspect that we draw attention here.

Method

Roughly equal numbers of general practitioners in Iowa and north-east England were asked to audit 100 patient consultations, using a pretested self-administered form. Each English and Iowan doctor had a reputation for providing good medical care, and most were taking part in undergraduate or postgraduate teaching. We thought that these doctors would represent high-standard practice in each area. Most were part of a group practice but none were in multispecialty groups. Hence they differed from Mechanic's samples,² which were more representative of all general practitioners in England and Wales and all doctors providing primary medical care in the USA.

The survey was conducted during November 1974 in each area. The doctors completed a form after 100 non-institutional consultations carried out on prespecified randomly selected times of day and days of the week. There are various methods of observing professional practitioners' activities, but since all are potentially subject to bias⁴ we felt justified in proceeding with this simple and very inexpensive system. The time taken to complete a form can reduce the time

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TABLE I—Age distribution of patients seen in Iowa and north-east England compared with age distribution of general population and proportion of patients who were well in each age group

Age (years)	Iowa				England			
	Patients		% of population in each age group	No (%) of patients well	Patients		% of population in each age group	No (%) of patients well
	No	%			No	%		
<1	107	4.3	1.7	52 (48.6)	59	2.2	1.8	8 (13.6)
1-4	154	6.2	6.6	33 (21.4)	166	6.0	7.2	2 (1.2)
5-18	432	17.5	28.2	45 (10.4)	427	15.6	25.1	12 (2.8)
19-44	864	35.0	30.6	139 (16.1)	1018	37.1	33.5	65 (6.4)
45-64	523	21.2	20.5	60 (11.3)	725	26.4	22.1	15 (2.1)
≥65	386	15.7	12.4	40 (10.4)	349	12.7	10.3	6 (1.7)
Total	2466	100	100	369 (15.0)	2744	100	100	108 (3.9)

TABLE II—Type of consultation for well patients

	Well-baby check	Routine physical examination	Family planning	Employment examination	Insurance examination	Other
Iowa	63	188	36	24	7	43
England	10	3	47	10	7	21

available for patient contact and change the doctor's behaviour, but the participants reported that completion took merely a minute or two and did not intrude into patient activities. The forms may serve as a reminder of activities and lead to changed behaviour, but this possibility was not deemed serious.

INFORMATION RECORDED

The patient's age and sex, together with place of consultation, were recorded. The major reason for the consultation—either specific illness or a preventive or routine medical examination in a well person—was determined by the doctor. Illness was divided into chronic (present and expected to continue to six months), acute, or follow-up acute. Doctors were asked to list up to four diagnoses in order of the time spent on each at the consultation.

Whether a history was taken, to what extent the patient was examined (none apart from feeling the pulse, local, system, or complete), and whether any diagnostic tests were performed were recorded. Diagnostic tests could include any preparatory activities performed by surgery (office) staff as well as tests specifically ordered after the consultation. Consultation time (under five, five to 10, and over 10 minutes) was estimated. Doctors recorded whether they ordered a definite return visit, a conditional follow-up if the problem did not resolve as expected, or no specific follow-up. Referrals to nurses, health visitors, public health nurses, as well as specialists, hospitals, and social workers, were noted. Finally, doctors were asked whether the patient was started or maintained on either antibiotic or psychotropic drugs.

Mail or phone contact during the survey ensured that completion rates were excellent, and missing information was less than 2% in every section. On receipt, the forms were checked and diagnostic categories coded by a trained, supervised clerk according to the classification of the Royal College of General Practitioners.

Results

Altogether 2466 consultations were recorded by 25 doctors in Iowa and 2744 consultations were recorded by 28 doctors in north-east England; 59.7% of the consultations in Iowa and 56.3% of those in north-east England were with women. Virtually all patients were Caucasian. People aged 1-18 years received less medical care than other age groups in both countries (table I). The variation between the two countries followed the age distribution of the general population except for an increase in the number of patients aged under 1 in Iowa and in the number of patients aged 45-64 in north-east England.

Place of consultation—In England 16.4% of patients were seen in their homes, while the corresponding percentage in Iowa was 0.6%. The highest rates for the English home visits were to those under the age of 5 and above the age of 65. In the latter group each five-year increase in age produced a steadily increasing percentage of home visits until 83% of those over 80 years were seen at home.

Well and ill subjects—The percentage of subjects in the well category was much higher in Iowa in every age group than in England (table I),

and there were almost three times as many women in the well category as men. The reasons for well patient consultations are given in table II. The distribution of types of ill patient was about the same in each area: one-quarter had chronic illnesses, two-fifths were acutely ill, and one-third were having follow up of an acute episode. In both areas over 25% of patients had two or more conditions considered at each consultation.

Procedures—A history was taken more often in England, but in Iowa the patients received a far more thorough examination (table III). In Iowa only 1 in 50 received no examination whereas in England the proportion was 1 in 8. One in 10 Iowans had a comprehensive examination including at least three systems whereas in England only one in 33 were so examined. This intensity of examination was found for both acute and chronic illness. Indeed, in England 1 in 4 patients with chronic illness received no examination. The proportion of ill patients subjected to specific procedures was consistently far greater in Iowa than in north-east England (table IV) and was reflected in both chronic and acute contacts. Consultations lasted longer in Iowa for both well and ill patients (table V), and almost twice as many ill patients had a consultation lasting over 10 minutes.

Follow-up—A follow-up was ordered in 56.1% of cases in Iowa and 52.6% in England. Conditional follow-ups were offered to 33.6% of

TABLE III—Procedures performed on ill patients*

Procedure	Iowa (n = 2097)		England (n = 2636)	
	No	%	No	%
History taken	1519	72.4	2396	90.9
No examination	40	1.9	318	12.1
Local examination ..	894	42.6	1063	40.3
Examination of system	946	45.1	921	34.9
Full examination	204	9.7	92	3.4
Unknown	15	0.7	245	9.7

*Excludes 13 patients for whom ill status was unknown.

TABLE IV—Laboratory and specific procedures performed for ill patients

Procedure	Iowa (n = 2097)		England (n = 2636)	
	No	%	No	%
Thermometer	667	31.8	162	6.1
Stethoscope	1235	58.9	736	27.9
Sphygmomanometer ..	1026	48.9	326	12.4
Auriscopes	612	29.2	222	8.4
Ophthalmoscope	218	10.4	46	1.7
Weight	748	35.7	105	4.0
Pelvic examination ..	146	7.0	54	2.0
Rectal examination ..	124	5.9	31	1.2
Urine analysis	322	15.4	153	5.8
Stool examination for occult blood	14	0.7	1	0.3
Cervical smear	53	2.5	13	0.5
Throat culture	34	1.6	12	0.5
Bacterial culture	33	1.6	42	1.6
Blood for haematology ..	226	10.8	100	3.8
Blood for chemistry ..	108	5.2	40	1.5
X-ray procedure	165	7.9	86	3.3
Electrocardiogram	29	1.4	20	0.8

TABLE V—Duration of consultations

Time (min)	Ill patients				Well patients			
	Iowa		England		Iowa		England	
	No	%	No	%	No	%	No	%
<5	713	34.0	1305	49.5	53	14.4	39	36.1
5-10	1065	50.8	1123	42.6	143	39.0	38	35.2
>10	319	15.2	208	7.9	173	46.9	31	28.7
Total	2097	100	2636	100	369	100	108	100

Iowan patients compared with 20.9% of English patients, but more repeat contacts, for both acute and chronic conditions, were actually made in England.

Referrals—Follow-up consultations by nurses were far more common in England and hospital admission far more common in Iowa (table VI). Social service contacts were almost non-existent.

TABLE VI—Referral after consultation

Type of referral	Iowa		England	
	No	% of all consultations	No	% of all consultations
Nurse in surgery (office) ..	16	0.6	128	4.7
Nurse in community ..	3	0.1	63	2.3
Admitted to hospital same day ..	26	1.1	6	0.2
Plan made for later admission ..	21	0.9	13	0.5
Referred to specialist ..	97	3.9	127	4.6

Diagnostic classification—The percentage distribution of diagnoses made is shown in table VII. More mental and respiratory disease was diagnosed in England and more circulatory disease and trauma seen in Iowa. Table VIII shows the 10 most frequently diagnosed conditions in each area; hypertension accounted entirely for the greater amount of circulatory disease in Iowa.

Antibiotic and psychotropic agents—Table IX shows the large number of patients on antibiotic and psychotropic drugs. In both areas there was a higher percentage of prescriptions for antibiotics to children—30-40% of the under 5s and about 25% of the 5 to 18-year-olds. The higher proportion of psychotropic drugs prescribed in England was almost entirely due to an excess of patients being maintained on these

TABLE VII—Percentage distribution of all diagnoses made in ill patients

Diagnostic category	Iowa (n = 2757)	England (n = 3532)
Infective or parasitic diseases ..	4.1	3.8
Neoplasms ..	2.4	1.7
Allergic endocrine, metabolic, or nutrition disorders ..	5.9	5.7
Blood disorders ..	1.0	1.2
Mental disorders ..	5.6	14.1
Disorders of nervous system, sense organs ..	8.2	7.0
Circulatory disorders ..	15.3	10.4
Respiratory disorders ..	15.4	20.0
Digestive disorders ..	4.2	6.6
Genitourinary disorders ..	7.0	5.1
Delivery and complications of pregnancy ..	5.8	3.0
Diseases of skin or subcutaneous disorders ..	5.5	5.9
Musculoskeletal disorders ..	6.0	7.5
Perinatal morbidity ..	0.0	0.0
Ill-defined symptoms or conditions ..	1.5	1.3
Accidents, poisoning, violence ..	10.3	5.4
Prophylactic procedures ..	0.3	0.7

TABLE VIII—Top ten diagnoses

Iowa	No of patients	England	No of patients
Hypertension ..	241	Common cold ..	190
Pregnancy ..	138	Depression ..	190
Superficial injuries ..	132	Anxiety state ..	170
Common cold ..	128	Acute bronchitis ..	155
Tonsillitis ..	97	Tonsillitis ..	119
Acute bronchitis ..	81	Hypertension ..	111
Strains and sprains ..	77	Superficial injuries ..	85
Acute otitis media ..	73	Pregnancy ..	79
Diabetes mellitus ..	66	Chronic bronchitis ..	77
Anxiety state ..	57	Osteoarthritis ..	68

drugs. In both areas the 45-64 age group had the highest usage, and women were prescribed psychotropic drugs almost twice as often as men.

Specific diseases and conditions—For all diagnoses the Iowan doctor was more thorough in his examination and more intensive in his investigations, and diseases such as hypertension, otitis media, and diabetes mellitus were apparently commoner in Iowa as a result. Some examples of specific conditions are shown in tables X-XIV.

TABLE IX—Use of antibiotic and psychotropic drugs

	Iowa		England	
	No	% of all ill patients	No	% of all ill patients
Started on antibiotics ..	324	15.5	352	13.4
Maintained on antibiotics ..	80	3.8	104	3.9
Total on antibiotics ..	404	19.3	456	17.3
Started on psychotropics ..	61	2.9	81	3.1
Maintained on psychotropics ..	97	4.6	211	8.0
Total on psychotropics ..	158	7.5	292	11.1

TABLE X—Selected procedures in patients with malignant neoplasms

	Iowa		England	
	No	%	No	%
Place performed				
Surgery (office) ..	31	100	16	47.0
Home ..	0		18	53.0
Procedure				
Thermometer ..	7	22.6	0	0
Stethoscope ..	18	58.1	7	20.6
Sphygmomanometer ..	15	48.4	1	2.9
Auriscopes ..	5	16.1	0	0
Ophthalmoscope ..	4	12.9	0	0
Weight ..	12	38.7	0	0
Pelvic examination ..	5	16.1	0	0
Rectal examination ..	2	6.4	1	2.9
Urine analysis ..	4	12.9	1	2.9
Blood for haematology ..	10	32.2	1	2.9
Blood for biochemistry ..	2	6.4	2	5.9
Plans for hospital admission ..	3	9.7	0	0

TABLE XI—Selected procedures performed in patients diagnosed as having anxiety or depression (as first diagnosis) and length of consultation and use of psychotropic drugs

	Iowa (n = 50)		England (n = 223)	
	No	%	No	%
Procedures				
No examination ..	8	16.0	123	55.1
Local examination ..	6	12.0	43	19.3
System examined ..	26	52.0	40	17.9
Full examination ..	10	20.0	17	7.6
Thermometer ..	9	18.0	1	0.4
Stethoscope ..	37	74.0	22	9.9
Sphygmomanometer ..	36	72.0	20	9.0
Auriscopes ..	10	20.0	5	2.2
Ophthalmoscope ..	3	6.0	4	1.8
Weight ..	23	46.0	9	4.0
Pelvic examination ..	4	8.0	2	0.9
Rectal examination ..	2	4.0	1	0.4
Urine analysis ..	4	8.0	5	2.2
Cervical smear ..	3	6.0	1	0.4
Blood for haematology ..	5	10.0	10	4.5
Blood for biochemistry ..	2	4.0	0	0
X-ray examination ..	5	10.0	2	0.9
Electrocardiogram ..	2	4.0	1	0.4
Length of consultation (min)				
<5 ..	5	10.0	72	32.4
5-10 ..	27	54.0	115	51.4
>10 ..	18	36.0	36	16.2
Drugs				
Psychotropic agent used ..	40	80.0	159	71.3

Discussion

In Britain society's traditional and conventional wisdom is that "if you feel well you are well." In America the "well person" examination is encouraged, and a child is brought up to expect mandatory football and camp physicals and expects check ups in later life. Propaganda by insurance and health organisations and

TABLE XII—Selected procedures in 66 patients with diabetes mellitus in Iowa and 22 in England

	Stethoscope	Sphygmomanometer	Ophthalmoscope	Weight	Urine analysis	Blood for biochemistry	X-ray examination
Iowa	53 (80.3)	57 (86.4)	16 (24.2)	40 (60.6)	16 (24.2)	35 (53.0)	1 (1.5)
England	6 (27.3)	4 (18.2)	0	3 (13.6)	5 (22.7)	3 (13.6)	0

TABLE XIII—Selected procedures performed in patients diagnosed as having tonsillitis (first diagnosis) and length of consultation and use of antibiotics

	Iowa (n = 93)		England (n = 112)	
	No	%	No	%
<i>Procedure</i>				
Thermometer	74	79.5	24	21.4
Stethoscope	62	66.6	24	21.4
Auriscopes	79	84.9	24	21.4
Urine analysis	3	3.2	1	0.9
Throat culture	14	15.0	4	3.6
Blood for haematology	14	14.0	1	0.9
<i>Length of consultation (min)</i>				
<5	41	43.8	78	69.6
5-10	51	55.1	32	28.6
<i>Drugs</i>				
Antibiotics prescribed	70	75.2	78	69.6

TABLE XIV—Selected procedures performed at family planning consultations

	Iowa (n = 36)		England (n = 47)	
	No	%	No	%
Thermometer	6	16.6	0	0.0
Stethoscope	25	69.4	11	23.4
Sphygmomanometer	25	69.4	22	46.8
Weight	14	38.8	18	38.3
Pelvic examination	28	77.7	3	6.4
Rectal examination	18	50.0	0	0.0
Urine analysis	9	25.0	3	6.4
Cervical smear	20	55.5	4	8.5

various pressure groups encourages this attitude. The American doctor appears to accept this philosophy, while British doctors appear to be more sceptical of its value and fearful of the potential increased work load. Hence in Iowa there were 188 routine examinations of healthy adults compared with only three in England. The thoroughness of well-patient medicine is exemplified by the family planning consultations (table XIV), and parallel differences were found in antenatal care.

Although the results indicated that the English doctors placed greater emphasis on history taking there was no doubt that the Iowan doctors examined their ill patients more thoroughly than their English counterparts in their search for physical disease. Probably both Iowan and English doctors were taught this approach in their hospital-orientated training, but the English general practitioners seem to have departed from it. Traditionally the Iowan patient arrives at his general practitioner's office expecting to be examined, whereas in England the patient probably has no such expectation; in both countries the doctor to some extent meets these expectations.

The surgery routine in Iowa militates in favour of examination and investigation. Patients are often screened by a nurse or receptionist who carries out certain routines—takes a short history, records temperature, weighs the patient, and then prepares him for what seems to be the appropriate clinical examination. For every instrument and test listed (with the solitary exception of bacterial cultures) the Iowan doctor did more than his English counterpart for every kind of ill patient. This agrees with the findings of Mechanic.² Between 30 and 40 different diseases or disease groups were analysed and in every single example the same pattern emerged: the Iowan doctor consistently investigated symptoms with a battery of examinations and tests, obviously hoping to clarify known disease and unearth other latent disease. The fact that three of the 10 most

frequent diagnoses in Iowa—hypertension, otitis media, and diabetes—all require positive measures for their detection shows the success of the Iowan doctor's approach, and the fact that only one of these occurs in the same list in England reflects the English doctor's more limited clinical examinations. Possibly the Iowan doctor underdiagnoses psychiatric disorders because the whole structure of his consultation is orientated towards somatic symptoms and their elucidation by examination and investigation. Nevertheless, their still fairly heavy psychotropic prescribing suggests that they are aware of the psychiatric component in their work even if this does not get included in their diagnoses. The Iowan patient with his historical background of rugged independence colludes with the avoidance of psychiatric labelling which might be interpreted as a reflection on his personal fibre.

The English patient arrives in his doctor's consulting room unscreened and wearing his outdoor clothes. He is more prepared to recognise "nerves" as the cause of his somatic complaints, may receive little examination, and accepts a psychiatric diagnosis based on a history. Most probably the 52% of ill patients who undergo an examination that does not even extend to a complete system are not being adequately examined. Iowan doctors could be accused of encouraging greater doctor dependence by suggesting more follow-up consultations; payments for item of service may influence this. In England follow-up consultations merely add to the work load.

The Iowan doctor is extremely concerned about missing organic disease, firstly for academic reasons and secondly for legal ones. That the patient can go to another doctor also probably fortifies the Iowan doctor in his desire to miss nothing organic and leave no examination or test undone. The English doctor, knowing the patient must come back to him or his partner, is probably more inclined to allow the consultation to extend over several interviews. This may result in a delay in diagnosis and is a byproduct of the lack of competition that exists in general practice in large areas of England.

Half the consultations in England lasted less than five minutes, as indeed did one-third of ill patient consultations in Iowa. Perhaps the five-minute consultation in general practice is not quite the anathema that is so often described but more the sort of consultation that the job itself requires. Mechanic² has shown that English general practitioners see more patients per day than their counterparts in America, but the latter work a longer day. In conforming to the British pattern of a shorter working week the general practitioner has had to compress more into each hour, with consequent harassment.

TEAM CARE

In Iowa there has been little or no attempt to develop comprehensive primary health care teams, whereas in England recently great efforts have been made to establish such teams.⁵ The formation of large group practices and the building of health centres facilitating the attachment of local authority nursing staff to work with doctors have been steps in this direction. Our results show the comparatively disappointing performance of these teams at present. Only 4.7% of consultations were followed up by a nurse in England, but the 10.9% of home visits so followed up do reflect the importance of nursing consultative care in maintaining domiciliary medicine in England.

Links with the social services in both countries were virtually non-existent, and it is possible that the general practitioner is

still trying to do much of his own social casework or is merely unaware of the need for it. The Seeborn Report⁶ and subsequent legislation in Britain that emphasised the need for good links between family doctors and social workers are currently proving ineffective.

Hospital bed availability, the community's greater faith in hospital technology, the absence of a domiciliary nursing team, and society's greater anxiety about ill people at home are probable major reasons why an Iowan patient is 10 times more likely to go to hospital on the same day that he attends his doctor than this English counterpart. All the above reasons, plus the fact that, because of a quirk of the insurance system, hospital investigations are cheaper for the patient in Iowa, probably reflect why he is three times more likely to go to hospital later.

Conclusion

The rather sombre conclusions that must be drawn from this survey are that neither group of doctors can be particularly happy with the results. The English and American ill patients do not appear to be very different in that their age structures and the percentages of acute and chronic illness they present are similar. The differences are apparent when the general practitioner appears on the scene. American doctors are more orientated towards a ritualistic clinical approach leaning heavily on investigation and hospital support. Their system must be

expensive. English doctors seem to operate at a less definitive level of diagnosis. During the last few years the behavioural aspects of medicine and the importance of psychosocial factors have been emphasised. These the English doctor has accepted to the neglect, some would say, of due attention to clinical expertise and the identification of latent disease.

Analyses of process unsubstantiated by assessment of outcome are unacceptable as measurements of the quality of medical care. This investigation emphasises the need for further outcome studies to identify and compare what ultimately happens to the patient, which, after all, is what matters.

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Statistics at Square One

II—Mean from frequency distribution

T D V SWINSCOW

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Last week the mean urinary lead concentration in children was calculated by adding up the observed values and dividing by the number of them. The total of the values obtained in the first study was 22.5 $\mu\text{mol}/24\text{ h}$, which was divided by their number, 15, to give a mean of 1.5 $\mu\text{mol}/24\text{ h}$. This familiar process is conveniently expressed by the following symbols:

$$\bar{x} = (\sum x)/n.$$

$\bar{x}$ (pronounced x bar) signifies the mean; x is each of the values of urinary lead; n is the number of these values; and Σ , the Greek capital sigma, denotes "sum of."

Calculation of mean

When Dr Green extended his study and obtained the urinary lead concentrations from 140 children, he tabulated the findings as shown in the first two columns of table 2.1, which are the same as in table 1.2.

TABLE 2.1—Calculation of mean lead concentration in urine of 140 children

(1) Lead concentration $\mu\text{mol}/24\text{ h}$	(2) Number of children	(3) Midway points of col (1)	(4) Col (3) $\times$ col (2)
0—	2	0.2	0.4
0.4—	7	0.6	4.2
0.8—	10	1.0	10.0
1.2—	16	1.4	22.4
1.6—	23	1.8	41.4
2.0—	28	2.2	61.6
2.4—	19	2.6	49.4
2.8—	16	3.0	48.0
3.2—	11	3.4	37.4
3.6—	7	3.8	26.6
4.0—	1	4.2	4.2
4.4			
Total	140		305.6

Mean lead concentration = $305.6/140 = 2.18\text{ } \mu\text{mol}/24\text{ h}$.

To calculate the mean of the 140 lead concentrations it is of course possible to add up individually the original results obtained in the laboratory and to divide them by 140. A less laborious method, and one that follows naturally from the tabulation of the results in a frequency distribution, is illustrated in table 2.1. Two assumptions are made. The first is that the lead concentrations can take any numerical value in the range, though the sensitivity of the apparatus used to measure them does in practice impose some limits on the continuity. (Continuous and discrete variables will be discussed more fully later.) The second