PRACTICE OBSERVED

GP Research: Inside Stories

From brainwave to breakfast television

NORMAN BEALE

In the autumn of last year Dr Norman Beale, an "ordinary general practitioner" from Calne, Wiltshire, published a paper on unemployment and health in the *Journal of the Royal College of General Practitioners* that caused both academic and media excitement. More papers are expected, and we asked Dr Beale to tell us how he began on this important project.

The idea came to me abruptly. I don't know why it happened or how. I can remember precisely where and approximately when. I was giving the lawn its first haircut in spring 1983. Several hundred of our patients had suddenly lost their jobs when the town's main employer, C & T Harris, had closed. Might this be affecting our practice workload? In seven years I must have driven past the factory some five thousand times—several hundred more since the gates had been locked. Why had I not realised the possible consequence of closure before? Again, I didn't know and at first I didn't much care. Did anyone care? I knew nothing of the health and unemployment debate and felt no impulse to join in. It was only involved in research when I didn't need more demands on my time why chase Alice down the rabbit hole?

In Cambridge I had been allowed the ultimate privilege of a British science education. The master of my college had won a Nobel prize for his work on the DNA formula and another don had just completed the amino acid sequence of human myoglobin. Neither had taught me in the formal sense, but I had glimpsed into their world to see men with foibles and prejudices like the rest of us. They were human but, more important, they were having fun. I remembered with pleasure the research project I had done for a year after second MB. I had learned to use a library to advantage, to define aims, to shuffle index cards, to tabulate results, and to list references. I was familiar with the infrastructure of science at least.

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The importance of luck

Conception, as always, was recognised only in retrospect. I was booked how many workers had been made redundant and who were they? The first measure from the essential bottle of luck was that the Harris personnel department was still extant and able to give me the names of the 302 workers with the company when it had shut. I tinkered with a "pilot" project and looked at the case notes of 50 men who were registered with the practice. For the first time in 15 years I began to read scientific papers properly. The conviction that similar research must have been done before I started changed into a realization that the subject was ripe for study—another 5 ml of luck. By intuition, more luck. I counted consultations for each of the five years before redundancy for the 50 men and, by now, for one year after. I began to think of including women employees and families and of constructing separate control groups. Reading had also fashioned into intuition hypothesis that redundancy was a stressful life event that was likely to be reflected in an increase in indices of morbidity—I was now also imbued with the argon. In June I read John Howe's book under canvas in France. So far all this had been intensely private. I even thought I might be mocked for pretending to be above my station.

In August I "came out" and discussed the project with the local postgraduate advisor in general practice. Ray was critical of my woolly thinking and denied my pride. But he was right. I had not even identified the 50 men with certainty. I now backdated for several months, but I suppose I've always been suburban. On anniversary one I got going again. I needed more information from Harris's and in March 1984 tracked down the relevant filing cabinets. In Ipswich, I began to approach other industry in Calne to find control employees I still in work: none demurred—more good luck.

Creativity is close to madness it is said. I could not have survived the year without a demonic, mania that had developed. I now had an obsession. I was ruling my luck like the most hardhearted gambler. Middle watch followed dog watch followed middle watch. I had to rifle through the record envelopes of over 500 patients counting consultations, episodes, outpatient referrals, and attendance over eight years. Some files were under thin files, but others two inches thick and gridded by rubber bands. The gnawing ache of such tedium is not easily forgotten. I am not sure that I could do it again. Now I began to be taught. I craved for research repeatedly compiled data from incomplete samples. Even the completed counts, however, didn't support my hunch. I could elicit no apparent change in morbidity in relation to job loss, months of work and nothing to show for it. "Six-as-hell anaemia", patients constantly remind us that I suddenly communicate poorly but do read our own minds any better? I suddenly

of circulation figures. We simply felt that this journal was the appropriate medium for a paper in and about general practice, but our consuming worry was that it was all gone and I had no more. I was in a bit of a bind. I was in London at the sexiest morning for TV-AM gave me reassurance. After countless interviews I had to escape to the metropolis. At least there would be no phone on the train. One said records told me that he had not invited my wife to take our puppy for a walk "in case she barks." We like to think he meant the dog. Several other engineers took the phone off the hook. "Good Morning Britain" was a surreal interlude after a sleepless night. Back in Calne at 11 am it started again. At 7 pm the whole family fled to London to the Lord Mayor's Show. After the weekend "Auntie" came, but, more important, Susan had found more significant results, the hub of another paper. To the add the fact of everything.

My superintended ego—oh, don't worry. The media have a way of dealing with this. As I was disconnected from the microphone at the end of my breakfast TV chat I saw the studio manager bring in the next guest—a life-sized Rupert Bear.

References

1. Beale N. Unemployment in jobless and family morbidity. *British Medical Journal* 1984; 89: 1000-1002.
2. Howe J. *Unemployment in jobless and family morbidity*. London: Croom Helm, 1984.

understood the importance of something I had known for four years there had been, then, earlier redundancies from the factory. Our present clearing lady was one of those who had been laid off. Did morbidity change with the threat of job loss two years before factory closure? Yes, it did. But could I prove it? Were the changes significant? I was drowning in data now, and it was my wife who threw me a lifeline. She had met socially Susan Nelzert, a medical statistician and, once while nursing a young family. She was promptly enlisted, and with enormous relief I handed her the numbers to crunch. The rest of the reality was now a short but full of reports, a deck of index cards, and a small financial loss. To the dismay of my family they came on holiday with us to Scotland.

In August I first heard of the Joint Working Party on Unemployment and Health of the Royal College of Physicians and the Royal College of General Practitioners and of their statistical adviser, Ian Russell. I met Ian in October and promptly showed him our results so far, that there were significant increases in the variances after 1980 we had already cracked a bottle. He was very gentle. He "thought" we "might" have used "other than the most appropriate" statistical play. This was not just backpedalling—the chain was off! I had even obtained a grant from the Scientific Foundation Board of the Royal College of General Practitioners which I might not need. Using the "better" technique we had to aggregate data—first two years and then four year clusters. It was all with Susan now.

I remember all the other events of that day too, the day that Susan phoned with new significant results—it was 8 November.

Writing it up was like doing a jigsaw that had no straight edges and found pieces from other puzzles. At one stage, of the 1700 words allowed, I found I had written an introduction of 1600. Eventually we submitted the paper to the *Journal of the Royal College of General Practitioners* in April 1985 after a two year gestation. We knew nothing of editorial policy, of distribution, or

Practice Research

The "five minute" consultation: effect of time constraint on clinical content and patient satisfaction

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Abstract

An experiment was carried out in which patients who were seeking appointments for a consultation in a general practice in south London attended consulting sessions booked at 5, 7.5, or 10 minute intervals. The particular session that the patient attended was determined non-systematically. The clinical content of the consultation was recorded on an encounter sheet and on audiotape. At the end of each consultation patients were invited to complete a questionnaire designed to measure satisfaction with the consultation. The stress engendered in doctors carrying out surgery sessions booked at different intervals of time was also measured.

At surgery sessions booked at 5 minute intervals, compared with 7.5 and 10 minute intervals, the doctors spent less time with the patients and identified fewer problems, and the patients were

less satisfied with the consultation. Blood pressure was recorded twice as often in surgery sessions that were booked at 10 minute intervals compared with those booked at 5 minute intervals. There was no evidence that patients who attended sessions booked at shorter intervals received more prescriptions, were investigated or referred more often to hospital specialists, or returned more often for further consultations within four weeks. There was no evidence that the doctors experienced more stress in dealing with consultations that were booked at 5 minute intervals than at consultations booked at 7.5 and 10 minute intervals, though they complained of shortage of time more often in surgery sessions that were booked at shorter intervals.

Introduction

The role of the general practitioner includes evaluating new symptoms of illness, providing continuing care for chronic disease, prevention, and health education. Much of this work is undertaken in the doctor's consulting room, and it might be argued that if more time was available the general practitioner would accomplish these tasks more completely. The average consultation time in British general practice has been reported as 5.5 and 6.6 minutes.^{1,2} Published studies suggest that several factors affect the duration of consultations.³⁻⁵ These include the age and social class of the patient,

the presenting problem, and whether the consultation is concerned with a new problem or is a follow-up consultation.

Surprisingly little has been written about the effect of consultation time on the content of the consultation. One study that compared two practices, where the appointment system was different, rates showed that consultations that were booked at more frequent intervals were associated with more patient prescriptions, more patients being asked to return for a further appointment, and more patients requesting a new appointment in the ensuing four weeks.⁶ These results, however, were not supported by a study in which patients were randomly allocated to consultations of different durations.⁷ In a study of patient satisfaction in relation to the duration of the consultation it was reported that patients were less satisfied and had more difficulty in communicating with doctors in short consultations.

This study was designed to measure a variety of variables in relation to consultations booked at different intervals of time and to test the following hypotheses. At surgery sessions that are booked at 5 minute intervals compared with sessions that are booked at 7.5 and 10 minute intervals the following differences would be recorded: (1) Doctors would spend less time with the patients; (2) Fewer patients would be examined, and the examination would be more restricted; (3) More prescriptions would be issued, more investigations carried out, and more patients would be referred to hospital or other health workers; (4) More patients would be asked to return for a second consultation or would initiate a second consultation within four weeks; (5) Fewer problems and fewer psychological problems would be recorded; (6) The doctors would exhibit greater stress in the consultation session; (7) The patients would be less satisfied with the consultation.

Method

The study was carried out in the Lambeth Road Group Practice in south London in which five principals provide care for about 9000 patients.

EXPERIMENTAL SURGERY SESSIONS

Over 12 weeks each principal booked three two hour experimental surgery sessions at 5 minute intervals, four at 7.5 minute intervals, and five at 10 minute intervals. A total of 60 experimental surgeries were conducted, and a method was devised to ensure that equal numbers of the different types of surgeries took place in the morning and the evening and on the five working days of the week. The experimental surgeries were identified in the appointment book, but the practice receptionists were instructed to book patients into these surgeries in the same way as they booked normal surgeries, with the exception that patients were booked sequentially from the beginning to the end of the surgery session to avoid gaps in the bookings. At the start of each session the doctor was fitted with a cardiac monitor to record his heart rate throughout the session. He was also asked to mark on a rating scale (see appendix) his feelings of stress at the start of the session. Patients who attended these experimental sessions were welcomed by the practice manager, who asked them to give written consent to the consultation being audiotaped. Data were collected by means of the audiotapes and by the doctor completing an encounter sheet for each patient who attended. The encounter sheet included the patient's name, the type of consultation initiated by patient or doctor, examinations carried out during the consultation, prescriptions issued for antibiotics and psychotropic drugs, and a subjective statement by the doctor of whether or not he had sufficient time for the consultation. Midway through the consultation the doctor recorded his feelings about the consultation on the rating scale and repeated this at the end of the session.

In the experimental sessions the doctors completed the usual medical records in which they recorded the problems that were identified at that consultation and the prescriptions and advice given. At the end of each consultation a patient was invited by the practice manager to complete a questionnaire that was designed to measure satisfaction with the consultation.

ANALYSIS OF DATA

After each consulting session the audiotape, the encounter sheet, the doctor's stress rating scales and a rating scale, the patient's answers to the satisfaction questionnaire, and all the patients' records were passed to the research administrator. The audiotapes were analysed according to a protocol which was developed over several weeks, and designed to reduce observer variation to a minimum. The information on the audiotape was extracted by one observer, but 6% of all tapes were checked by a second observer.

In testing the hypotheses the outcome variables, which in most cases were binary, were expressed as percentages. The percentage response in respect of different variables was compared between sessions booked at different intervals of time. To test for the tendency for a particular response to increase or decrease consistently in the sessions booked at 5, 7.5, and 10 minutes logistic regression analyses were carried out. In these analyses was made for any effect of the age and sex of the patient. As some events appeared to be related to whether or not the consultation was initiated by the patient or the doctor these trends were tested separately and are reported where this relation was detected. The figure shows how data were collected and handled.

Results

Data were collected from 780 consultations: 275 consultations booked at 5 minute intervals, 263 booked at 7.5 minutes, and 243 booked at 10 minutes. Sixteen per cent of patients would not consent to audiotaping and 4% of the tapes were unusable or incomplete. In these cases the data available for analysis was that recorded on the encounter sheet, the patient's records, and the doctor and patient questionnaires.

TIME SPENT WITH PATIENT

Table I gives the results of the analysis of the duration of face to face consultation between doctor and patient as measured on the audiotapes. Of the 780 patients, 623 provided complete tapes of consultations. The range of time spent with the patients varied from less than 1.5 minutes to over 20 minutes for all three types of surgery sessions. The median time spent with each patient increased as the booking rate reduced. In the sessions booked at 5 minute intervals the median time spent with each patient was 5.2 minutes. In the sessions booked at 7.5 and 10 minute intervals, the median consultation times were 6.7 and 7.4 minutes. Consultations that were initiated by the patient took longer than those initiated by the doctor in the three types of surgery, particularly in sessions booked at 5 minute intervals, where more patient initiated consultations occurred (table I).

EXAMINATION OF PATIENTS

The examination that was carried out at consultations was recorded in respect of eight systems of the body and whether or not a rectal or vaginal examination was carried out and whether the blood pressure was recorded (table II). At least one system was examined at 66% of consultations. The

TABLE I—The median and range of time recorded on audiotape for consultations booked at 5, 7.5, and 10 minute intervals

Booking rate min	Consultation time			
	No. of consultations	Median min	Range min	
Doctor initiated				
5	65	4.1	0.7-15.4	
7.5	96	4.4	1.4-19.5	
10	88	7.0	1.7-29.9	
Patient initiated				
5	155	5.5	1.5-20.4	
7.5	147	5.5	1.4-20.4	
10	102	7.9	1.0-19.8	

relation between examinations carried out and booking times varied between patient initiated and doctor initiated consultations. At patient initiated consultations more examinations were carried out at the sessions booked at shorter intervals: 77% in 5 minute sessions, 76% in 7.5 minutes, and 69% in 10 minutes; and at doctor initiated consultations 41% in 5 minute sessions, 55% in 7.5 minutes, and 63% in 10 minutes (significance of trend <0.01).

TABLE II—Percentage of consultations booked at different intervals of time at which examinations and blood pressure were recorded

Examination carried out	Consultations booked at					
	5 min	7.5 min	10 min	5 min	7.5 min	10 min
Any examination	41	55	64	77	76	69
Eye, nose and throat	5	6	11	22	12	10
Chest	3	4	9	9	6	15
Cardiovascular system	8	3	11	16	16	15
Blood pressure	18	27	29	12	8	12
Abdomen	1	3	2	12	8	9
Vaginal*	2	10	10	5	11	2
Rectal*	1	3	3	2	1	2
Joints	1	3	4	8	10	10
Skin	0	8	11	21	21	21
Nervous system	0	1	2	2	6	3
Eyes	0	0	0	0	0	0
No. of consultations	80	117	114	195	145	129
*No. of consultations of women over 16 years	47	70	61	101	88	70

These differences may be explained to some extent by the way surgeries were booked. Surgery sessions that were booked at 5 minute intervals offered 24 appointments compared with 12 at the sessions booked for 10 minutes, thus providing more opportunities for patients to be booked in at the last minute. The excess of examinations at patient initiated consultations in 5 minute sessions was largely accounted for by examinations of the ear, nose, and throat and abdomen, which affected a large number of consultations for acute illness of the upper respiratory tract and gastrointestinal tract.

The largest difference between surgeries booked at different intervals of time was in the frequency of measurement of blood pressure. These trends were present in both doctor and patient initiated consultations. Overall, blood pressure was recorded at 10% of consultations booked at shorter intervals: 16% at 5 minute sessions, 20% at 7.5 minute sessions, and 20% at 10 minute sessions. For women over age 16 vaginal examination took place overall at 4% of consultations booked at 5 minutes, at 11% at 7.5 minutes, and at 8% at 10 minutes.

REFERRAL, PRESCRIBING, RETURN CONSULTATIONS, AND REPORTED PROBLEMS

The results concerning the rate of referral to hospital specialists and for investigations, prescribing rates, the number of return consultations in the ensuing four weeks, and the number of problems identified at each consultation were not appreciably influenced by the type of consultation (doctor or patient initiated). Table III gives these results for all consultations combined.

There was no significant relation between referral to hospital specialists, other health professionals, or for hospital investigations and the sessions booked at different intervals of time.

Prescriptions were issued at 59% of consultations in the 5 minute sessions compared with 69% and 62% in the 7.5 and 10 minute sessions. Antibiotics were most commonly prescribed in the 5 minute sessions (15%, 10%, 11% in the 5, 7.5, and 10 minute sessions). Although antibiotics were prescribed more often in sessions booked at 5 minute intervals, this was not accounted for by the higher proportion of patient initiated consultations which took place at these sessions. Psychotropic drugs were slightly more likely to be prescribed in sessions booked at longer intervals.

TABLE III—Events recorded per 100 consultations

Events recorded per 100 consultations	Consultations booked at			
	5 min	7.5 min	10 min	
Referral to specialist	8	9	10	
Referral to other health worker	4	4	6	
Antibiotic prescribed	15	10	11	
Psychotropic issued	9	6	6	
Antibiotic prescribed	15	10	11	
Psychotropic drug prescribed	6	9	9	
Return consultation booked	11	16	22	
A psychological problem recorded	9	14	12	

There was no significant trend in the proportion of patients being asked to make an appointment for a return visit in the different types of surgery session, and there was no difference in the proportion of patients seen in the three types of session consulting again over the following four weeks. Doctors were significantly more likely to refer patients to other health workers in surgeries booked at longer intervals ($p < 0.01$), and they were more likely to record psychological problems in the surgeries booked at longer intervals. The consultations in which a psychological problem was recorded actually took a mean of 3.9 minutes longer than other consultations, independent of the booking rate of the surgery.

DOCTORS' STRESS

The doctors recorded that they had insufficient time for the patient's problem more often in the sessions booked at shorter intervals: 23% at sessions booked at 5, 7.5, and 10 minutes, test for trend $p < 0.001$. There were no consistent differences between the responses of the doctors to the rating scales in the three types of surgery. Both the scores on the rating scales and mean heart rate tended to be least for the 7.5 minute sessions and greatest for the 5 minute sessions (table IV).

TABLE IV—Mean (SE) scores on stress rating scales and mean (SE) pulse rate recorded at consultation sessions

Stress measurement	Consultations booked at			
	5 min	7.5 min	10 min	
Stress score	11.0 (0.8)	9.8 (0.5)	10.6 (0.7)	
Pulse rate	72.4 (4.2)	70.1 (3.5)	70.1 (3.4)	

PATIENT SATISFACTION

Patients were more likely to complain of shortage of time in the sessions booked at shorter intervals (table V). Patients who had been seen in the sessions booked at longer intervals were more likely to state that they had "very free" to discuss their problem with the doctor. Among those saying that they needed information about their condition a higher proportion said that they were very satisfied with the information given in the sessions booked at longer intervals: 90%, 91%, 93% in the 5, 7.5, and 10 minute sessions. Likewise, among patients receiving prescriptions those who were seen in sessions booked at longer intervals were more likely to say that they had received enough information about their treatment: 92%, 96%, 97% in the 5, 7.5, and 10 minute sessions. Though in each case the trend was in favour of sessions booked at longer intervals of time, it was not significant. This probably reflects the sample size in terms of the numerical differences recorded.

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