PRACTICE OBSERVED

Practice Research

Waiting for the doctor

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Abstract

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The best time interval between appointments in general practice surgeries where patients were allocated specific times to see their doctor was studied. A mathematical model which is insulates the pattern of the arrival of patients and consultations at the surgery, and which can be run rapidly not computer, was constructed. The model can be applied to any general practitioner's surgery that operates an appointments system. The only inputs accessary are observations of the arrival times and consultation times of all patients at 10 of the doctor's surgeries. The stope of the reduction in waiting times that was attained in one practice is discussed.

Introduction

Introduction

In scommon practice for general practitioners in England and Wales to have appointment systems for their surgeries, but many patients continue to experience delays, in some cases of more than better of the control of the common and seeing the control of the common and seeing the control of the common of the common of the control of the common of the control of the

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delays increase as surgeries proceed. Many doctors are concerned to avoid having patients wait unnecessarily, and some doctors, knowing that the waiting room is full, may, if only subconsciously, rush consultations and give less than their full attention to patients. The problem is therefore to find the right interval between appointments to optimise waiting times for both patients and doctors. Though this to optimise out might always seek to reduce delays to a minimum, the quantity to be minimised need not be the simple tool of patients. Waiting time and doctor's slack time, in adding tool of patients waiting time and doctor's slack time, in adding tool of patients. Waiting time and doctor's slack time, in adding tool of patients waiting time and doctor's slack time, in adding tool of patients waiting that adores attaches to his or ber time compared with a patient's time. There may be wide variations between different general practices, depending on the doctor's approach to consultations and on the punctuality of patients. Therefore, it cannot be said that an interval between appointments of a minutes is the best for all practices. The approach described in his paper will indicate the best interval between appointments for a practice.

When this best interval has been determined, however, it cannot

this paper with inturate time tests miteral decrease apparatise.

When this best interval has been determined, when this because of the uppredictability in any general practice surgery the best planned appointments systems can go awn. Nevertheless, there are advantages to be gained by applying to appointments systems the technique of mathematical simulation described in this paper. That technique uses the results of observations of one general practice to semilate further surgeries of that practice and, be septement, to see which choice of appointment interval minimuses delays.

Case stouy.

De Who and De No are partners in general practice in a small town in the north of England. Their surgeries are held in a purpose built health centre, where a gonomenters systems have been used for many cars. For both De Who and De No appointments had been allocated at the muster intervals except at even that flow after the beginning of the surgers, which meant that I I patients were due to arrive during the first hour of surgers, and if during cach succeeding hour. This patient was generally thought to be most

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BRITISH MEDICAL JOURNAL. VOLUME 292 12 APRIL 1986 of the wate fluctuations in the total waiting and slick times from surgery to surgery, largely because of the higher proportion of Dr. No! patients who failed to keep their appointments. Thus the number of those failed present the surgery is a surgery to the surgery to the surgery in t

the average waiting time for a patient could be reduced to between a quarter and a half of its observed level

Conclusion

Now that the model has been developed and computerised it may easily be applied to any general practitioner's surgeries that are run with appointments systems. For any doctor the necessary data can be observed from 10 separate surgeries and then fed into the model for the simulation experiments. A general practitioner who wishes to undertake such an exercise could either employ operational research consultants on contract, or if he or she has access to a moderately large computer, purchase a copy of the program that we have developed. In either the computer is not a copy of the program that we have developed in either the computer purchase a copy of the program that we have developed. In either the computer is not the computer of the computer o

Essays on Practice

The chief examiner's letter

IOHN D SINSON

When the news leaked out that 74% of trainers sitting the membership examination of the Royal College of General Practitioners had passed the regional advisers' champagine corks started popping. The shows that for vases the college had claimed that its reasonable training in general practice. Indeed, in the document "Towards quality in general practice. Indeed, in the document "Towards quality in general practice. Indeed in the document "Towards quality in general practice. Had the college had claimed that the examination assured a credible standard for entry into general practice. Had the battle been conveyed to the glass salvage when an existent in the shape of a letter from the chief examiner samps landed on the regional advisers' desix indicating worries and concerns over the performance of the trainers in the examination. Never much that the vast inations of the trainers could now become members of the college, it was the view of the examiner than concern, and the regional advisers had better know about it. Never before had such a letter been received on behalf of the regional good to the control good claims and almost invariably leading to certification for doctors who completed it. Yet the letter's criticism had been freely laced with such expressions as "majority." "most candi-

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dates," "receive no teaching," "surprisingly high numbers," and "global frequency." Jeaving no doubt that a majority of candidates had a major source of weakness that worried the examiners. This set the regional advisers in number of indice. For what sort of college were their young colleagues attempting to son? Could in admitted to strength and the received of the college were their soung colleagues attempting to son? Could in admitted to strength and the college are expected to live up to and the apporation loss standard operformance that could entitle 14% of examiners to membership. The interence was either that the college was verianting for new members so that it would accept arrown or that the chief examiner and colleagues had the college was verianting for new members so that it would accept arrown or that the chief examiner and colleges had fellowship roles and requires no expansion through mappropriate members. This leads to the next riddle: if the examiners had got it wrong what confidence could regional advisers have in the examiners are known to undergo and the region with which the caminers are known to undergo and the region and which the caminers are known to undergo and the region of the hard the examiners are known to undergo and the region of the hard the examiners are known to undergo and the region and the hard that the college that show weekled with the structure and process of their examination as this college has done. So taking all these factors together it looks as if the chief examiner's letter was written on a "bad day." hence the hyperbole.

But for the regional advisers the Secret riddle was the decision to a "bad day." hence the hyperbole. But for the regional advisers the Secret riddle was the decision to be a "bad day." hence the hyperbole. But for the regional advisers the Secret riddle was the decision to be a "bad day." hence the hyperbole. Secret riddle was the decision to the secret riddle was the decision to the day of the day of the secret riddle was the decision to the da

convenient for both patients and doctors, but little consideration had been given to whether it might be uniproved. Druning November 1984 detailed observations were made of 10 surgeries held be such doctor. Although these included both mortining and aftermoon surgeries, the time of day was not supindiant. For each surgery the times of all appointments that had been made in advance were listed preserving the anonymic of patients, deopther water, but any other patients are all the surgery varied between oght and 22, and several patients failed to arrive at the surgery.

surgeries, the time of day was not significant. For each surgery, the times of all appointments to that had been made in a set aut times of arrival of potents and of the beginning and end of every consultation. The number of patients per surgery and the between eight and 22 and several patients falsed to arrive at the surgery. Set the distribution of number of patients per surgery, be the distribution of home of the distribution of number of patients per surgery, and the distribution of home patients with the distribution of home patients with the distribution of home patients are part of the distribution of home patients are part of the distribution of home patients are part of the distribution of the patients are part of the distribution of the patients are part of the distribution of dist

Simulation model

Hong abstroach the surgence of Dr Who and Dr No. I constructed a mathematical model which can represent the surgeries of any general practitioner who uses an appointment system. The model employs the basic techniques of mathematical simulation with four Monte Carlo assignments of random numbers, one for each of the four frequency data throutous listed above. For each assignment 100 random numbers are divided into blocks being represented. For example, all 100 and 101, 110 butters arrived the bung represented For example, all 100 and 101, 110 butters arrived the manufacture early for their appointments then a block consisting of 10 of the 100 random numbers would be allicated to the "tax mutual early" frequency in the punctuality distribution, and in drawings a random number falling within the block we there the simulations of the condition of the distribution may be assigned to the category of patients who fail to arrive at the surgetion.

BRITISH MEDICAL JOURNAL VOLUME 292. 12 APRIL 1986. When the separate allocations of random numbers have been made for all four frequency distributions, each in accordance with the observations of a four frequency distributions, each in accordance with the observations of a number drawn from tables, from a "bing drum" or by a computer process. For each run of the model the only other parameter to be assigned a side in the time interval between appointments, and first each run the total waiting time for patients and side time for the decion can be calculated. By calculate the process of the control of

Results

The state of the control from observing the surgeries of Dr. Who and Dr. Noverle data in the model described above, and over 200 computer runs were completed for each doctor's stack time relative to patient water that the confidence of the control from the control from the control for the control from the control from

membership by all prepared doctors. Had the college not just published a document on "Quality in general practice." Yet it doctors that the college not just published a document on "Quality in general practice." Yet it doctors that many parameters of general practice knowledge Regional advisors could only share in the resulting embarrasiment. On cool reflection there was another by riddle. The examiners letter had been written as though there was a "constain" called examinee and all the variable related to the stimuli provided by training. The resultint "product" was consequent upon what had reason that the stimulation of the consequent upon what had a mechanistic view of training is worrying. The cohort of trainers stituting the camination is a variable as it could possible be within a single profession. They are drawn from three year schemes—that is, just three vests from full registration—right up to doctors who are changing careers after many years and who may have one or two different but so in intelligence, motivation, and commitment. It is on this great span of educational, cultural, and personality differences that training operates and quite validity may result in a wide spectrum of performance under all conditions including academic caminations.

The view of the teaching unit—the training practice—precived academic and that on a bard encounter unities for stimulation of the continuation of the conditions of an oral examination. This judgment bordered on arrogance when, in the complex chemistry of in service learning and conditions of a rained and trained and the cause regional advisors learning and conditions of a rained and trained and the cause regional advisors regard the training period conditions of a rained and trained and the cause regional advisors regard the training period conditions of a rained and trained and the cause regional advisors regard the training period conditions of the complex chemistry of mercine terraining, redding it to an induced "stimulas-response" behaviour pattern. This

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Dr. J. D. Thoration, of the United States Manne Hospital Service, gives some further interesting details in the New Yesh Medical Record, of the class of Ferich-Canadians among whom the precularly hysterical affection, which services the production of the production of the production of the production of the prevalent. They are found represently among the luminosem—French-Canadians, who go over into Maine and the other "I'll had from time to time bear they are found represently among the luminosem—French-Canadians, who go over into Maine and the other "I'll had from time to time beard unihermen and others whose avocations lead them to spend much time among the French camps, speak of these fumpers. It had also to the as I thought about distores they related in regard to them, until one day, while streading to my divine us the near my deek, by turning the buston osidently, this tetring the frame fall a short distance, making a quark, sharp noue, when three out of seven French-Canadians who were string pear, avening their certificates of inspection, which would have done credit to a North-American Indian. From that time! I was on the work for these strange characteries, and, when possible, made inquaries of them through my interpreter, in regard to the cause of their conditions. Before speaking of this, perhaps in will be well one continued to the continued of them. I French-Canadian of want laturer, came out from an adjunct camp to the possible, reade inquaries of the decide in a most of Styring is stoud stranger to the delical, a nam of 55 years of a great most entering the condition before the stranger to the delical, a nam of 55 years of a great product of the cause of the condition before the stranger to the delical, a nam of 55 years of a great product of the cause of the condition before the stranger to the delical, a nam of 55 years of a great product to the cause of the cause of