Case Study – Systems

Patient demographics as a predictive tool of consultation duration

Volha Pankevich

Fellow of the Royal College of General Practitioners

Key messages

General practitioners (GPs) should not accept that it is inevitable that they will run chronically behind schedule. We are generally interventionists when addressing our patients' medical complaints; we can do the same when managing our own patient load. Our patients and their problems are not homogeneous; some consultations require significantly more time than the standard ten minute appointment slot allows, and others significantly less. One approach to more effectively managing appointment schedules is to develop a predictive profile of patients who are likely to require significantly shorter or longer consultations than the standard ten minutes and schedule accordingly.

Why this matters to me

It seems to me that most general practitioners are stoically resigned to being chronically behind schedule and having their sessions run well beyond their nominal conclusion. However, this situation is stressful for GPs and staff and certainly does not positively contribute to quality of care or patient satisfaction.^{1,2} Remarkably, there has been little investigation into either the cause of or a solution to this pervasive problem. This study does not pretend to offer a solution to this complex problem; rather, it suggests that this state of affairs is not irremediable and offers some preliminary work on one possible approach to finding a resolution.

ABSTRACT

This paper reports on a study undertaken to test the hypothesis that known patient demographics will be a reasonably reliable predictor of the duration of a patient's consultation with a general practitioner, regardless of the medical experience of an individual physician.

Keywords: appointments and schedules, consultation, job satisfaction, patient satisfaction, staffing and scheduling

Introduction

Consultation time management is a topic of serious concern to general practice trainees, particularly in preparation for the CSA examination; it is also an issue for salaried general practitioners and partners. When appointments run late:

- the physician feels stressed and rushed, leaving them more prone to making errors³
- the patient is unhappy; untimeliness contributes significantly to reported patient dissatisfaction⁴
- communication between a disgruntled patient and a rushed physician will generally be sub-optimal⁵

- the reception staff find the working environment unpleasant and stressful.

Despite the prevalence and consequences of consultation overruns in general practice, the professional conversation in this area has been largely anecdotal and descriptive rather than analytical or, even more rarely, prescriptive.^{6–9} It is one thing to show that a pattern exists but quite another to do something useful with that knowledge.

In recognition of the consequences that follow on from untimeliness and the assumption that experienced

physicians handle consultations more efficiently than trainees, the length of time allotted to each appointment varies considerably based on the physician's depth of experience. A novice Foundation Year 1 trainee may have appointment slots that are 30 minutes long whilst a salaried general practitioner (GP) or a registrar near the end of his or her training will typically have appointments booked every ten minutes.

While current practice takes into account the physician's level of training and experience in determining the length of time allotted to an appointment, it does not take into consideration the patient's characteristics when allocating consultation time. Common sense and personal experience tell us that patients are extremely diverse not only in their complaints and conditions but also demographically, and that one consultation 'size' will not fit all.

This gives rise to the question of how a practice might recognise, at the time the appointment is made, whether a consultation with a particular patient will be shorter or longer than the standard appointment duration on a given physician's calendar.

Time management can be evidence based

The hypothesis considered in this study is that known patient demographics will be a reasonably reliable predictor of the duration of the patient's consultation with a GP, regardless of the medical experience of an individual GP. Personal practice experience suggested the investigation of the following demographic factors.

- *Age*: young children take time to examine because they either cannot communicate verbally, or cannot do so effectively. Communication, even with older children, can be a challenge. Furthermore, both the child and the parent must be addressed during a consultation. Advanced age may also be a factor. Older patients routinely have multiple complaints or pre-existing conditions. Elderly patients are more likely to be infirm and therefore take more time to examine and treat.¹⁰
- *Gender*: gender is an instantly ascertainable demographic factor and was included as a factor, without a concrete basis, on speculation that it has predictive value.
- *Known chronic condition*: when including this factor, it seemed equally plausible that a consultation with a patient with a known chronic condition could be either more abbreviated or protracted.
- *New patient*: the assumption is that a patient new to the practice will require a longer initial consultation in order for the GP to establish a sound

rapport with the patient and review medical history forms.

- *Prior consultation*: when a GP and patient have an established relationship, there is the possibility that the consultation could be more efficient and therefore shorter; there is also a possibility that both parties will feel a need to refer back to prior interactions, even when they have no bearing on the presenting condition.¹¹
- *Frequent attendance*: this factor might mirror and simply recapture the profile of patients with a known chronic condition or it might reveal a significant sub-set of patients suffering from hypochondriasis. The information regarding attendance is readily available and merited consideration.

Any factors which cannot be readily found in the existing medical records of a patient were deliberately excluded from consideration in this research. This excludes potentially relevant demographic factors such as race, religion and employment status, as well as the nature of the medical complaint which gave rise to the consultation, the number of different complaints raised during the consultation or the GP's subjective views – i.e. the patient was talkative, slightly intoxicated, eccentric or suffering from early dementia. These factors were excluded for three reasons.

- 1 Taking into consideration factors such as race or religion would require intrusive questioning of the patient and would be a controversial and illegal basis for allocating consultation time, even if those factors had a high predictive value.
- 2 None of these factors would be known to reception at the time the appointment was booked; they can therefore play no role in determining the length of time that should be allotted for the consultation. Some of these factors might be relevant, with hindsight, to understanding the actual length of the consultation, but this study is limited to factors that are presently known and have potential predictive value at the time the appointment is booked.
- 3 Including these factors would require all the GPs in the practice to actively gather and record information from each patient that would not routinely be generated during the consultation and that is not already present in the patient's records. The additional time spent gathering this data would distort the results of the study, as well as deter GPs from participating in it.

Study design

This pilot study of consultation length draws upon the data compiled by eight GPs in a single surgery in the

East of England Deanery in 2010. One physician was a partner in the practice, three were salaried GPs, two were Year 3 Specialist Trainees (ST-3) trainees and two were Foundation Year 2 (FY-2) trainees. Each of the GPs had worked in this particular practice setting for more than a month prior to the collection of data.

Each physician was to gather data from four clinical sessions. The number of patients seen during a session varied with the appointment slot length, cancellations and no-shows. It was intended that the activity of 32 clinical sessions would be captured by the data. Several GPs failed to record all four sessions and as a result, the study is based on a total of 29 clinical sessions. Demographic data and appointment length were recorded for 377 patients.

Average consultation times

The average consultation time was calculated for each GP to determine whether the consultation overruns were common to all physicians in the practice and if time management improved with experience. The standard consultation time within the practice was ten minutes; however, this time was extended for more junior GPs. A FY-2 trainee was allowed 20 minutes for each consultation and a specialist trainee in their first or second year was allowed 15 minutes. Trainees in their registrar year were scheduled to see patients every ten minutes, the same as a fully qualified GP.

Because the FY-2 trainees were allowed 20 minutes for each consultation, the times which they recorded for consultation length have been halved for easier comparison with the data gathered by the more experienced GPs. (This adjustment was self-validated by the fact that the adjusted data for the junior GPs largely mirrored values of the data gathered by the more senior physicians.) Table 1 shows the average length of consultations for each of the audited physicians, with the adjustment, noted above, for the most junior trainees.

These figures, taken alone, might suggest that late running appointments are a minor problem; however, these calculations understate the problem. These numbers do not capture the time spent post-consultation, updating patient file entries. Nor do they take into account the time spent summoning the next patient – including time spent by the patient gathering their personal effects and walking to the consultation room. Allowing just two or three minutes for these activities, a pattern emerges of surgery sessions routinely running 45 minutes to an hour late.

Since the average appointment length for seven of the eight GPs ran over the allotted time, this pattern cannot be attributed to less-experienced or under-performing individuals.

The GP's average consultation time

As noted, the standard consultation time within the practice is ten minutes, with extended time allocated for more junior GPs. Within the practice, consultation is considered to have run over if it has lasted 11 minutes or more. The FY-2 trainees' consultations were considered to have run over if they lasted 21 minutes or longer.

In order to clarify whether or not the overrun of the allotted consultation time was *de minimus*, the late running consultations were further divided into those that ran over by less than 13 minutes and those that ran over by 13 minutes or more. Table 2 shows what proportion of consultations ran over the nominal time limit for each audited physician.

These figures indicate that, on average, one-third of all consultations ran at least 30% longer than the time allotted for the appointment. The data also suggests that overruns are fairly common for all GPs, regardless of experience, and that overruns cannot be attributed to the atypically poor time-management skills of a few individuals. Time overruns during consultation appear to be systemic.

Demographics of over-running patients

From the figures in Table 3, the following conclusions can be drawn.

Table 1 Average consultation times

	Average time (minutes)
Partner	11.26
GP number 2	10.46
GP number 3	12.36
GP number 4	12.69
ST-3 number 1	10.82
ST-3 number 2	10.83
FY-2 number 1	10.00
FY-2 number 2	10.65
Mean average: GPs	11.13
Mean average: consultations	10.98*

* Data was collected by sessions; some physicians saw more patients during a session than others. Because of this, some physicians contributed more data than others.

Table 2 Percentage of consultations which ran over time

	All over-running consultations	Duration (11–12 minutes)	Duration (≥ 13 minutes)
Partner	42.30%	3.80%	38.50%
GP number 2	41.60%	6.90%	34.70%
GP number 3	54.50%	18.10%	36.40%
GP number 4	44.40%	4.40%	40.00%
ST-3 number 1	47.40%	25.30%	22.10%
ST-3 number 2	43.10%	13.90%	29.20%
FY-2 number 1	30.00%	0.00%	30.00%
FY-2 number 2	51.20%	9.30%	32.60%
Mean average	44.30%	10.20%	32.90%

Table 3 Patient characteristics in late-running consultations

Demographic factor	All patients	≥ 11 minutes	≥ 13 minutes
Age ≤ 18 years	13%	11%	12%
Age ≥ 60	21%	27%	30%
Male	44%	43%	45%
Female	56%	56%	57%
Chronic condition	59%	70%	72%
New patient	4%	7%	9%
Prior consultation	38%	45%	40%
Frequent attendee	35%	42%	46%

- Young patients are neither over- nor under-represented in the subset of patients whose appointments overran; youth has no appointment length predictive value.
- The gender of a patient has no value in predicting whether or not an appointment will run beyond the allotted time.
- The fact that the patient has previously consulted with the same GP has, at best, a marginal value in predicting that an appointment may run over.
- Both advanced age and the presence of a known chronic condition are factors which make it significantly more likely that the appointment will run over.
- Appointments with patients new to the practice are highly likely to run over. Fourteen of the patients in this study were attending their initial appointment

with this practice. Of these 14 consultations, 11 of them, or 78.6%, ran over the allotted appointment time. The mean average for all new patient consultations was 13.7 minutes and the mean average for the 11 consultations which overran the allotted time was 15 minutes.

Conclusions

The investigation highlighted by this study tends to support the hypothesis that known patient demographics are reasonably reliable predictors of the duration of a patient's consultation with a GP, regardless of the medical experience of an individual GP. The

over-representation of the elderly, frequent attendees, patients with chronic conditions and new patients within the appointment overruns is statistically significant. If these results were to be duplicated in other practice settings by other investigators, they would support at least a modification of scheduling practices to routinely allot longer appointment times to new patients and to frequently-attending elderly patients with chronic conditions.

Appointment and session overruns, at least within the practice under investigation, are a significant and chronic problem for every GP, regardless of experience. This situation adversely affects job satisfaction, as reflected in the literature.¹² This study suggests that, with some considered changes to scheduling practices, addressing the problem may be possible.

In larger practices, a bank-style queuing system in which patients see the first available GP might merit investigation.¹³ Another alternative might be to empower the patient to select the length of appointment that they anticipate will be necessary; the patient could be given the option of choosing a five, ten or 15 minute appointment.^{14–16} The most obvious solution – extended consultation times – has also been advocated,¹⁷ but for economic reasons, this solution seems highly implausible.

In conclusion, the first step to addressing the situation is for GPs to recognise that this situation is not irremediable and that they should apply the methodology upon which evidence-based medicine rests to address chronic problems with appointment time management.

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ETHICS COMMITTEE APPROVAL

Since this study is an audit and not primary research, ethics approval is not required.

CONFLICTS OF INTEREST

None.

ADDRESS FOR CORRESPONDENCE

Dr Volha Pankevich, 10 Essex Close, Springwood, QLD 4127, Australia. Tel: (61) 07 3299 2181; email: volha@crimapp.com