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# Does waiting time for specialist out-patient appointments affect clinic attendance and doctor shopping in Hong Kong?

## Key Messages

1. Doctor shopping remains the most important effect of long waiting times for specialist out-patient appointments. Further research is needed to identify effective strategies to change this behaviour.
2. Improved triage and referral systems are needed to ensure that patients are directed to the appropriate level of care.
3. Pilot studies are needed to test the effectiveness of strategies designed to change or moderate patient attendance behaviour.

## Introduction

Non-attendance is a major health services research and management issue<sup>1</sup> as it may lead to delayed or sub-optimal care.<sup>2</sup> Long waiting times have often been implicated in non-attendance behaviour.<sup>3</sup> Non-attendance and/or a delay in presentation may predispose the patient to avoidable ill health.<sup>4</sup> Non-attendance contributes to clinic inefficiency, higher costs, and lower productivity.<sup>3</sup> The decision to attend for care is complex and multidimensional. Patients may forget their appointment, have conflicting obligations preventing their attendance,<sup>5</sup> experience a change in their health status, or seek services from other health providers (doctor shopping).<sup>6</sup> Numerous strategies targeting these factors have been implemented with varying degrees of success.<sup>3</sup>

## Aims and objectives

We set out to determine why patients fail to attend specialist out-patient department (SOPD) appointments, and to examine the independent associations between waiting time, doctor shopping, and non-attendance. We focused on the (a) characteristics of attenders and non-attenders, (b) reasons why patients did not attend, and (c) clinic inefficiency as a consequence of non-attendance.

## Methods

This was a large case-control study carried out at four public hospital SOPDs: Queen Mary Hospital, Kwong Wah Hospital, Pamela Youde Nethersole Eastern Hospital, and Caritas Medical Centre.

## Setting and participants

All ethnic Chinese patients aged 16 years or older who were referred and scheduled for new SOPD appointments between July 2000 and October 2001 were eligible. Patients were defined as those who did not attend for their first appointment ('non-attenders') and the controls were those who attended ('attenders'). First appointment was defined as the first appointment made by a patient at this clinic for the current problem. A physician's referral letter was required to book this appointment. Cases were identified from the patient attendance list and controls were selected, in a 1:1 ratio, as the next consecutive attender following the non-attender cases on those lists. All selected subjects were contacted within 1 month of their scheduled appointments for a 20-minute telephone interview. The next consecutive attender or non-attender on the list replaced those who could not be contacted after five attempts or who refused to be interviewed. The study sample size was 342 cases and 342 controls for each sub-speciality.

## Data collection

Information was collected from three main sources: patients' referral letters, telephone interviews, and hospital administrative databases. Data collected included age, sex, education level, marital status, personal monthly income, the number of household members, active and second-hand smoking status, self-reported health status, self-perceived illness intensity, medical benefits or health

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insurance coverage, willingness to pay to decrease waiting time, potential attendance improvement strategies, referral source, and the reason for referral.

### **Main outcome measures**

The main outcome measures were waiting time and doctor shopping. The key explanatory variables were socio-demographic characteristics, perceived health, reason for referral, and source of referral. Secondary outcome measures were the characteristics of attenders and non-attenders and patterns of health-seeking behaviour.

### **Data analysis**

The Chi squared test was used to check for independence of categorical variables while the *t* test and analysis of variance were used to compare group means. Bivariate odds ratios (ORs) were generated to test for the association between non-attendance and all baseline characteristics. Waiting time (expressed in weeks) was defined as the time between the appointment booking time and the scheduled appointment time. The cost analysis explored costs for non-attenders from the patients' and clinics' perspectives, including travelling time, transportation, and appointment booking costs. Staff time required for booking/triage, management of missed appointments, and idle time costs were included in the calculation of clinic costs.

### **Results**

A total of 6495 of 9365 individuals (response rate, 69%) were recruited and successfully contacted for a telephone interview. Respondents were much less likely to be non-attenders (crude OR=0.51; 95% confidence interval [CI], 0.47-0.56). Non-attenders were younger, more likely to be divorced, separated or widowed, to be a current smoker, have less serious self-perceived illness severity, and more likely to have private medical insurance. Non-attenders were also more likely to have longer waiting times and to doctor shop (OR=2.61; CI, 2.33-2.93).

Non-attenders were more likely to have been referred from a public sector accident and emergency (A&E) department (crude OR=2.05; CI, 1.77-2.39), have no previous SOPD appointment history (crude OR=1.13; CI, 1.03-1.25), previously defaulted an SOPD appointment (crude OR=2.65; CI, 2.12-3.31), to not cancel a private sector appointment if unable to attend (crude OR=1.38; CI, 1.17-1.63), perceive their problem as non-urgent and unnecessary (crude OR=1.71; CI, 1.25-2.33). Fewer than 20% of those who thought their problem was non-urgent sought medical attention elsewhere. Non-attenders perceived a greater change in their health status (either better or worse) than at the time of the appointment. Non-attenders referred from the A&E department were more likely to be current smokers (adjusted OR=2.17; CI, 1.14-4.12), did not receive an explanation of the need for the referral (adjusted OR=1.69; CI, 1.05-2.72), to have defaulted other SOPD appointments (adjusted OR=3.19; CI, 1.75-5.83), be

**Table. Reasons for non-attendance**

Description	No. of patients
Attended another doctor/clinic	351 (14%)
Problem resolution or exacerbation	511 (20%)
In hospital or too ill to attend	3.1%
Visit no longer necessary	15.2%
Another medical appointment at the same time	1.7%
Social/personal problems or constraints	663 (26%)
Could not take time off work/school	12%
Care for family members	0.5%
Away from Hong Kong	5.8%
Bad weather	1.3%
Unspecified personal problems	6.4%
System-related problems	1015 (40%)
Forgot/confused appointment date, lost or did not receive appointment information	30.8%
Waiting time too long	6.8%
Attitude of clinic staff	2.4%
Total	2540

referred for a medical SOPD appointment, and to rate their problems as either much better or much worse than when referred.

### **Reasons for non-attendance**

System-related problems (with forgetfulness, confusion regarding appointment date, lost or non-receipt of appointment information contributing most at 30.8%) were the most-frequent reasons given for patient non-attendance (Table). Social and personal problems and constraints also substantially contributed to patient non-attendance. While 36.5% of non-attenders doctor shopped, only 14% gave this as a reason for their non-attendance.

### **Waiting time, doctor shopping, and non-attendance**

Patients (particularly those with higher self-perceived severity of illness) were more likely to be non-attenders as the waiting time increased. There was a clear dose-response gradient where the risk for non-attendance increased with longer waiting times. Adjusting for doctor shopping in the final model did not appreciably change the ORs. Non-attenders were less likely to be satisfied with the waiting time (crude OR=2.24; CI, 2.20-2.48). Patients (particularly those with higher self-perceived severity of illness) who doctor shopped were more likely to be non-attenders (adjusted OR=3.10; CI, 2.70-3.55). This pattern was also consistent by hospital and speciality.

### **Costs of non-attendance**

Analysis of the cost of non-attendance was based on the non-attendance prevalence (25%) estimated in the pilot study. With 1 615 773 attendances at these four SOPDs reported in 2001, we estimated there would be 403 943 non-attendances. The total yearly patient costs associated with non-attendance including appointment booking, cancellation, rebooking, and travelling costs as well as the private sector appointment costs for doctor shoppers, was HK\$18 879 639.56. Patient costs for non-attenders who doctor shop were 8.7 times greater than for non-attenders

who did not doctor shop. The total yearly clinic costs including appointment booking costs, costs associated with appointment triage, staff idle time associated with non-attendance, and the opportunity cost of lost appointments associated with non-attendance was HK\$122 291 335. The clinic costs for non-attenders who doctor shopped were 1.14 times those of non-attenders who did not doctor shop. The total estimated 2000-2001 costs of non-attendance for these clinics was HK\$144 170 995.

## Discussion

This study found that non-attendance was associated with a number of modifiable risk factors reported by others<sup>7</sup> such as currently smoking, lower self-perceived illness intensity or urgency, doctor shopping, history of poor appointment attendance behaviour, A&E department referrals, and increased waiting time. For every 1-week increase in waiting time, there was an incremental rise in the risk of non-attendance by 3.9% (standard deviation, 0.9%), benchmarked against 7% reported in a UK study.<sup>3</sup>

Patients who doctor shopped had an almost two-fold increase in the likelihood of defaulting their original appointment. This magnitude of risk was even greater than that conferred by being in the highest quartile of waiting time, underlining the importance of this potentially modifiable behavioural trait. Although some have argued that doctor shopping is a fundamental patient right to choose the best care available, this behaviour often leads to wasteful deployment of resources and duplication of clinical and laboratory work on the health services level, as well as exposes patients to the potential hazards of polypharmacy, iatrogenic disease from drug interactions, and discontinuity of care from an individual perspective.<sup>8</sup> Numerous local prevalence estimates from 1989 and 1990 have gauged the level of doctor shopping at between 30% and 40%<sup>8</sup> while we found a corresponding figure of 26.4%, signalling a marginal improvement in the last dozen years. This behaviour imposes a doctor shopping non-attendance cost of approximately HK\$82 million on these clinics, more than half of the overall costs (HK\$141 million or HK\$350 per missed appointment) attributable to non-attendance. This is a significant public health problem and financial loss (when extrapolated to all Hong Kong SOPD it represents a cost of non-attendance approximating 0.07% of the 2001 Hong Kong gross domestic product) that remains to be resolved for individual providers and health care organisations alike. In a mixed medical economy such as Hong Kong's where patients have the latitude and an apparent persistent tendency to doctor shop for medical attention, it is essential for care providers to be aware of this common practice, elicit their patients' understanding of their health problems and expectations of treatment, and most importantly, ask which other providers they have visited or indeed may plan to consult for the same problem.

These results confirmed our hypotheses that both

waiting time and doctor shopping were independent predictors for non-attendance but the evidence did not support a link between waiting time and doctor shopping. The reasons for non-attendance are highly complex and not open to simple solutions. Numerous strategies targeting factors associated with non-attendance have been attempted with varying degrees of success.<sup>3</sup> Growing lists and hence waiting time may reflect inappropriate referral. Further research should be undertaken to identify mutable patient and system factors associated with the source of referral, long waiting time, and patient non-attendance. Drawing together the two sectors of the medical economy and utilising the excess capacity of the private sector through an outsourcing policy has the potential to shorten waiting time and reduce the lack of usage associated with public sector queues, minimise patient default and the associated inefficiencies due to excessive waiting and doctor shopping, and increase private sector utilisation. Strategies to prevent abuse of the system could include a minimum waiting time on the public sector waiting list before offering transfer to private facilities, discouraging return to the public sector by patients who have previously opted for transfer to the private system by using incentives or regulations, giving preference for public-to-private transfers to patients who have not requested such before, and so on. Supplementing publicly funded care with a private payment system will not necessarily reduce waiting time.

Our results may be used to develop initiatives to reduce non-attendance. There is an urgent need to improve communication between care providers—between specialities, across the public-private sector divide, and between western and complementary practitioners—to minimise the potential harm of doctor shopping and to discourage such a practice.<sup>9</sup> We also suggest that local public hospital patients not be given the referral letter to book their own appointments because they can, and do, as the findings indicated, use the same letter to schedule several specialist appointments simultaneously, thereby leading to increased defaults. In parallel, patient education programmes that address misconceptions about the achievement of good quality care and explicit warnings about inappropriate types of care-seeking behaviour may reduce doctor shopping and therefore non-attendance.<sup>8</sup> Targeted strategies such as referral guidelines aimed at improving the quality of referrals particularly from the A&E to SOPD are needed.

## Conclusions

The challenge in reducing waiting time and doctor shopping lies in redesigning the referral system to shorten waiting lists, using triage effectively, and expediting urgent cases while managing the expectations and demands of the less urgent referrals. In Hong Kong, an additional task would be to redress the public-private sector imbalance where the out-of-pocket fee differential between two sectors providing similar levels and quality of service can be very high. Such supply-side management would go a long way

toward shifting those who could afford private care from public sector waiting lists to private practitioners. As Sharp and Hamilton<sup>1</sup> have stressed, local solutions are needed to address local problems. Researchers and managers should also evaluate the effectiveness of these recommendations on reducing waiting time, doctor shopping, and, ultimately, non-attendance.

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### References

1. Sharp DJ, Hamilton W. Non-attendance at general practices and outpatient clinics. *BMJ* 2001;323:1081-2.
2. Frankel S, Farrow A, West R. Non-attendance or non-invitation? A case-control study of failed outpatient appointments. *BMJ* 1989;298:1343-5.
3. Hamilton W, Round A, Sharp D. Patient, hospital, and general practitioner characteristics associated with non-attendance: a cohort study. *Br J Gen Pract* 2002;52:317-9.
4. Morton A. The enigma of non-attendance: a study of clients who do not turn up for their first appointment. *Therapeutic Communities* 1995;16:117-33.
5. Hamilton W, Round A, Sharp D. Effect on hospital attendance rates of giving patients a copy of their referral letter: randomised controlled trial. *BMJ* 1999;318:1392-5.
6. Gatrad AR. Comparison of Asian and English non-attenders at a hospital outpatient department. *Arch Dis Child* 1997;77:423-6.
7. George A, Rubin G. Non-attendance in general practice: a systematic review and its implications for access to primary health care. *Fam Pract* 2003;20:178-84.
8. Lo AY, Hedley AJ, Pei GK, et al. Doctor-shopping in Hong Kong: implications for quality of care. *Int J Qual Health Care* 1994;6:371-81.
9. McGlade KJ, Bradley T, Murphy GJ, Lundy GP. Referrals to hospital by general practitioners: a study of compliance and communication. *BMJ* 1988;297:1246-8.