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Impact of Telephone Reminders on Attendance Rate at Paediatric Clinics

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Abstract

Background: Non-attendance in clinics has major economic impact in the national health service. Literature review indicates that main reason for non-attendance is forgetfulness and reminders reduce the non-attendance rate (NAR).
Objectives: We aimed to evaluate the NAR at the paediatric outpatient clinics after implementation of telephone reminders.
Patients and Methods: NAR was reviewed for 6 months (February-July 2013) and compared with the NAR for similar duration in 2014 (before and after implementation of telephone reminders). Within 2014 data, comparison was also made for patients who confirmed attendance during telephone reminders versus those left a voice message and patients who were not contactable.
Results: Total number of patients in 6 months were 4156 [2674 follow-up (F/U), 1482 New] in 2013 and 4732 [3100 F/U, 1632 New] in 2014. Overall NAR in 2014 was significantly lower (5.1%) than in 2013 (P = < 0.001)). The difference for follow up appointments was 6.9% (P = < 0.001), and 1.75% for new appointments (P = 0.147). Patients who confirmed attendance were more likely to attend their appointment (97.9%) compared with those left a voice message (91.4%) and those that were not contactable (82.1%).
Conclusions: Our results validate that telephonic confirmation of clinic appointment plays a significant role in reducing the NAR in paediatric out-patient clinic setting.

Keywords: Reminders, Clinic, Non-Attendance, Did Not Attend or DNA

1. Background

Anyone who is deemed to be ordinarily resident in the United Kingdom is entitled to free national health service (NHS) hospital treatment in England. The NHS service users are registered with their general practitioner (GP). Patients can be referred to children's clinic by their GPs, other clinicians, following emergency department visit or after discharge following hospital in-patient admission.

Non-attendance in paediatric outpatients is an ongoing problem in the national health service (NHS) and exposes vulnerable children to significant risks. Non-attendance for appointments has major implications on already stretched economy in the health care sector. Moreover, it also results in wasted resources, disturbs planned work-schedules and increases the waiting time (1). It does have major financial implications in the current era of payment by result with 12 million GP appointments (costs NHS £162 million/year) and 6.9 million outpatient hospital appointments (£228.73 for each new patient appointment and £139.31 for a follow up appointment according to 2015/16 tariff) being missed in United Kingdom annually. During the period of credit crunch and austerity measures, this loss further dents NHS annual recurring saving targets. The main reason for non-attendance is patients/parents simply forgetting the appointment. Other reasons include weather conditions, school term breaks, school exams and timing of the appointments (2). Literature review indicates that reminder before clinic appointment reduces non-attendance in the clinics (1).

Telephone call reminders were introduced for all paediatric outpatient appointments from February 2014 in a district general hospital setting.

2. Objectives

We aimed to evaluate the non-attendance rate (NAR) at the paediatric outpatients after implementation of telephone reminders.

3. Patients and Methods

We prospectively collected data from February 2014 for a period of 6 months to look at the impact of telephone call reminders on outpatient clinic attendance rate and compared it with the attendance data for similar duration from February 2013. Trained staff from the trust patient access

center called parents few days before the clinic appointment to remind/confirm the appointment. Those who did not answer the phone were left voice messages (where possible). Hospital attendance data was obtained from the trust database.

We also carried out sub-analysis on the 2014 data and compared 3 groups: Group 1, answered telephone call and confirmed the appointment; Group 2, voice message left on the answer phone; Group 3, not contactable. Group 3 included patients not contactable either because they didn't answer telephone call and there was no voice messenger or the phone number was incorrect/not available. Statistical analysis was carried out using SPSS 21 for Windows. Relationships between categorical variables were analyzed with Fischer's exact test and $P < 0.05$ was considered as significant.

4. Results

For 6 months duration (February-July) in 2013, there were 4156 patient appointments; 2674 were follow up and 1482 were new patient appointments. In 2014, for 6 months duration (February-July), total patient appointments were 4732; 3100 were follow up and 1632 were new patient appointments. Overall, reduction of NAR in 2014 (11.4%) compared to 2013 (16.5%) was statistically significant (5.1% difference, $P < 0.001$). The NAR for follow up patients in 2014 was 11.7% and compared to 18.6% in 2013, 6.9% difference was statistically significant ($P < 0.001$). On the other hand, the new patient's NAR in 2014 was 10.9% compared with 12.65% in 2013. Although there was a 1.75% decrease in 2014, the difference was not statistically significant with $P = 0.147$.

From the total of patients in 2014, 2998 patients were randomly selected by the patient access center to receive a telephone call reminder. Among these patients, 28.1% (842/2998) answered and confirmed the appointment (Group 1), 23.3% (700/2998) did not answer and a voice message was left (Group 2) and 48.6% (1456/2998) were not contactable (Group 3). The NAR in Group 1 was 2.1% (18/842) compared with 8.6% (60/700) in Group 2 and 17.9% in Group 3 (261/1456), $P < 0.001$ between all groups (Table 1). The demographic pattern was similar across all the 3 groups.

The difference in NAR for follow up and new appointments is shown in Table 2. The difference between Group 1 and 2 was statistically significant for both follow-up and new appointments (2.6% vs. 10.7%, $P < 0.001$ and 1.6% vs. 5%, $P = 0.027$, respectively). The same statistical significance was also observed between Group 2 and 3 (10.7% vs. 20%, $P < 0.001$ in f/u appointments and 5% vs. 14.8%, $P < 0.001$ in new appointments) as well as between Group 1 and 3 (2.5% vs. 20%, $P < 0.001$ in f/u appointments and 1.6% vs. 14.8%, $P < 0.001$ in new appointments).

Table 1. Non-Attendance Rates (NAR) Among 3 Groups in 2014[a]

Total	Group 1	Group 2	Group 3
Contacted	842	700	1456
NAR	18	60	261
NAR (%)	2.1	8.6	17.9

[a] $P < 0.001$.

Table 2. Non-Attendance Rates (NAR) for Follow Up and New Appointments in 2014

	F/U	NEW
Group 1	2.5% (13/520)	1.6% (5/322)
Group 2	10.7% (47/440)	5% (13/260)
Group 3	20% (176/880)	14.8% (85/576)

5. Discussion

The strength of our study is the fact that we prospectively collected the data for NAR after implementation of the telephonic reminder intervention. Our NAR even before intervention was 16.5% which is interestingly lower than the published meta-analysis with median NAR of 23% (1). We assume that the reason for this difference is because the meta-analysis had included all published literature including adult population. On the other hand, our NAR was comparable to similar Paediatric population (3). The comparison with a historical cohort could have led to selection bias with retrospective data collection for 2013 cohort. In order to minimize the bias, we compared the data for similar months (February-July) in 2013 as well as in 2014.

Prospective sub-analysis showed that the patients confirming the appointment were statistically more likely to attend their clinic consultation with minimal NAR of 2.1%. Overall, after the intervention, the NAR was reduced significantly by 5.1%. This was also true for follow-up patient clinic consultations. However, we were not able to replicate the same statistical significance in new appointments. This could be attributed to the fact that patients and parents are more likely to remember and attend a new appointment. However, confirmation of appointment resulted in minimal NAR for both follow-up and new consultations, reinforcing the efficacy of the direct communication.

In a study looking at reasons for non-attendance in paediatric follow-up patients, Dodd KL et al. interviewed 191

parents/children. 20% of parents and 26% of General Practitioners (GPs) felt that the GP could care for the child in primary care setting, whereas only 6% of consultants felt this to be so (4). One would hypothesize that it could be due to parents' perception of recovery from symptoms after the initial appointment and makes one wonder whether telephone confirmation prior to follow up appointment would have helped and follow-up appointments in those patients could have been avoided. It is possible that those parents who are concerned or anxious about their children's health are the ones likely to keep up the appointments. However, our sub-analysis makes us feel that confirmation of attendance was the only variable predicting attendance in clinic, be it new or old.

Our study did not look at reasons for non-attendance and henceforth, apart from confirmation of attendance as being the only variable predicting attendance, we are unable to comment on reasons for non-attendance. In a study carried out in Malaysian tertiary hospital where the non-attendees were contacted and proforma was filled to find out the reasons for non-attendance, the main reasons were - forgetfulness, weather conditions and timing of the appointment (2). A study, looking at the results from research studies, audits, conference presentations and policy documents across the UK, identified further reasons, encompassing primarily socio-demographic and socio-cultural factors, along with other practical or logistical factors such as referral waiting times, transport problems or care of other children (5).

Two types of costs are incurred by providers due to non-attendance (6): social costs i.e. lost value of the unused or misused resources resulting in lower productivity and lost benefits and financial costs due to loss of income caused by non-attendance (6). Various strategies have been suggested to improve non-attendance rate including financial incentives (7), fines (8) and postal/text/telephone reminders/open appointments (5). So far, there has been opposition to the implementation of financial model of fine in the NHS because it merely transfers the cost from the provider to the user which is thought to be against NHS concept of free at the point of delivery for users. Similarly, financial incentives are not a sustainable model in debt heavy NHS. Other penalties such as removal from waiting list and/or moving down the waiting list are not applicable to paediatrics in view of the significant risk to the patient with regards to safe guarding (9). Henceforth, reminders in some form seem to be the most applicable intervention in paediatric practice to reduce NAR.

A previous study in Birmingham (UK) showed that reminders reduced the NAR by 22% (34% vs. 12.3%) from the base line[3]. However, the measures taken in that study were primarily to improve the NAR in the ethnic minority population which probably is not applicable to all settings such as Caucasian predominant catchment population. In a pilot project carried out in a diabetic transitional clinic, telephone reminders reduced the NAR by 26% (10). The NAR increased during the period when intervention did not happen. This clearly implies that the intervention has to be on going to see a sustained reduction.

The weighted average reduction in a review encompassing 42 studies (11) showed that the greatest improvement was with telephone reminders (9.1%), followed by text or SMS (8.6%), postal reminders (7.6%) and open appointments (6.1%). Furthermore, recent systematic review showed that manual reminders can achieve a relative reduction of 39% in the NAR from the baseline compared to the automated reminders which reduces the NAR by 29% from the baseline. The average estimated cost for telephone reminder was €0.41/patient. The mean cost of phone reminder was slightly higher i.e. €0.90/patient as compared to the mean cost of SMS or automated phone call reminders which was €0.14/patient (1). Although this review advocates that SMS/text reminders might be the most cost effective strategy to reduce NAR, findings from our study favour universal implementation of telephone reminders in NHS practice.

5.1. Conclusion

Our results, like previous studies, reinforce the evidence that the reminder before clinic appointment with confirmation of attendance from parents reduces the NAR more for follow up appointments compared to new patient appointments. We feel that the available evidence is sufficient to recommend universal implementation of telephone reminders in NHS practice. However, a large prospective randomized study comparing telephonic reminders with text messaging in paediatric population is urgently required as text messaging will be more cost effective strategy to reduce NAR compared to telephonic reminders.

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Footnotes

Authors' Contribution: All the authors (Mansoor Ahmed, Sujatha Chinnappan, Evangelia Gole, Benjamin Martin and Azhar Manzoor) have sufficiently contributed to the study concept and design, acquisition, analysis and

interpretation of data as well as administrative, technical, and material support. Sujatha Chinnappan and Evangelia Gole also contributed to the statistical analysis. Mansoor Ahmed, Sujatha Chinnappan and Evangelia Gole drafted the manuscript and participated in the critical revision of the manuscript for important intellectual content. All the authors (Mansoor Ahmed, Sujatha Chinnappan, Evangelia Gole, Benjamin Martin and Azhar Manzoor) approved the final manuscript. Mansoor Ahmed is the study supervisor.

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