

## Telephone reminders reduced non-attendance rates in a paediatric outpatient department

Kofoed, Poul-Erik; Madsen, Marianne Toft; Thomsen, Jane

*Published in:*  
Acta Paediatrica

*DOI:*  
10.1111/apa.14701

*Publication date:*  
2019

*Document version:*  
Accepted manuscript

*Citation for published version (APA):*  
Kofoed, P.-E., Madsen, M. T., & Thomsen, J. (2019). Telephone reminders reduced non-attendance rates in a paediatric outpatient department. *Acta Paediatrica*, 108(5), 971-972. <https://doi.org/10.1111/apa.14701>

Go to publication entry in University of Southern Denmark's Research Portal

### Terms of use

This work is brought to you by the University of Southern Denmark.  
Unless otherwise specified it has been shared according to the terms for self-archiving.  
If no other license is stated, these terms apply:

- You may download this work for personal use only.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying this open access version

If you believe that this document breaches copyright please contact us providing details and we will investigate your claim.  
Please direct all enquiries to [puresupport@bib.sdu.dk](mailto:puresupport@bib.sdu.dk)

Article type : Brief Report

Telephone reminders reduced non-attendance rates in a paediatric outpatient department.

Poul-Erik Kofoed<sup>1,2\*</sup>, Marianne Toft Madsen<sup>1</sup> and Jane Thomsen<sup>1,2</sup>

1: Department of Paediatrics, Kolding Hospital – a part of Lillebaelt Hospital

2: Institute of Regional Health Research, University of Southern Denmark

\*: Corresponding author: Poul-Erik Kofoed

Department of Paediatrics

Kolding Hospital

Sygehusvej 24

6000 Kolding

Denmark

E-mail: [poul.erik.kofoed@rsyd.dk](mailto:poul.erik.kofoed@rsyd.dk)

Running title: Telephone reminders reduce default rates.

Missed hospital appointments increase health costs, make the healthcare systems less effective and can delay diagnoses and treatments. Studies have shown that providing reminders by letter, texts or telephone calls decreased non-attendance rates (1-4).

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/apa.14701

This article is protected by copyright. All rights reserved.

The paediatric outpatient clinic at Kolding Hospital, Denmark, experienced an increasing number of late cancellations and no-shows, despite sending automated texts 48 hours before appointments.

We decided to call parents two weeks before their child's appointment to encourage them to cancel if they were unable to attend or no longer needed the consultation.

Patients scheduled for appointment from February to June 2018 were selected for the study.

Parents to patients booked in uneven weeks were contacted by telephone during working hours 15 days prior to the appointment. If contact was not achieved by the first call a second call was made.

Bookings in even weeks served as controls. All parents still received the text reminder.

It was registered if a telephone number was known and whether the parents were reached. From the booking system it was registered how many appointments were cancelled by the clinic and how often the parents cancelled early, defined as 1 to 14 days before, and late, defined as less the 24 hours before the scheduled appointment. The number of times the clinic succeeded in finding a replacement for a cancelled appointment and the number of non-attendances were recorded.

Time used finding telephone numbers and making calls was registered. An average hourly rate of 250 Danish kroner for a secretary was used for calculating costs. The average Diagnosis Related Groups rate at the paediatric outpatient clinic in Kolding from January to October 2018 was 2,590 Danish kroner. This was used for evaluating the revenue generated.

Chi-square-test was used comparing binary outcomes between two groups.

Permission was granted by the Danish Data Protection Board (J. no.: 2018-18/44408). No ethical approval was required.

A total of 6,255 patients were included in the study with 2,834 (45%) in the intervention group and 3,421 (55%) in the control group. Patients' attendance, early cancellations, late cancellations and non-attendance and patients being cancelled by the clinic were registered (Table 1).

Of the original patients still on the daily appointment lists, that is excluding patients having the appointment cancelled by the clinic or who made an early cancellation, 10% (241/2,479) versus 13% (381/3,041) ( $p = 0.001$ ) either cancelled late or did not attend in the intervention group and the control group, respectively.

When parents cancelled early, we found replacements for 163/275 (59%) in the intervention group and 165/276 (60%) in the control group ( $p = 0.70$ ). When adding these to the patients from the original patient-lists attending, still only 2,401/2,834 (85%) and 2,825/3,421 (83%), respectively, of the out-patient capacity was utilized. Thus 2% more patients or 20/1,000 bookings were seen in the intervention group corresponding to a revenue of 51,800 Danish kroner/1,000 bookings. The secretary spent a total of 102 hours or 36 hours/1,000 bookings calling the parents corresponding to a salary of 9,000 Danish kroner/1,000 bookings. The profit calling the patients was thus 42,800 Danish kroner equivalent to 5,095 £/1,000 patients booked.

For 357/2,834 (13%) patients in the intervention group the telephone numbers were not known and another 744 (26%) did not answer the phone. Of the 1,733 reached by telephone 1,436 (83%) attended the planned appointment as compared to 809/1,101 (73%) ( $p < 0.001$ ) not reached. A total of 95/1,733 (5%) and 146/1,101 (13%) ( $p < 0.001$ ), respectively either cancelled the appointment late or did not show up.

We have previously shown that reminder-letters decreased the default-rate in a paediatric outpatient clinic considerably (1). Other studies have shown that sending text-reminders had a positive impact, but that personal telephone calls were even better (4).

The secretary did not succeed calling 39% of the patients, still the overall default-rate decreased from 11% to 9%. Of the ones reached by telephone only 5% did not turn up as compared to 13% of the ones not reached. This difference could be an effect of the reminders, or reflect a difference between the two groups.

Non-attendance on the day of the consultation cannot be re-booked and are thus wasted. Early cancellations gives the opportunity to replace with patients from the waiting list - the earlier the patient cancel the appointment the easier it is to find a replacement. Telephone-reminders decreased the default-rate on the day of the planned appointment. Furthermore, more made an early cancellation, which is an advantage as approximately 60% of the patients cancelling the appointment early were replaced by waiting patients.

The reasons for cancellations by the clinic were many: e.g. staff sick; patients' test results not available as expected; equipment problems, double bookings. Even though in each case it might seem justifiable to cancel an appointment, 3% appears to be far too high a percentage and it should be prioritized to reduce these.

This study confirms that reminders using telephone-contacts to parents two weeks prior to a planned outpatient appointment decreased the default-rate and that it was cost-effective. However, after being reminded of the appointment many patients made early cancellations of which only 60% could be reused, which together with the fact that only 3 out of 5 patients could be reached by telephone limited the overall impact of the intervention. If implemented telephone-reminders should only be one out of more interventions.

**Conflict of interest**

The authors have no conflict of interests to declare

**Funding**

This study received no external funding

## References

1. Kofoed PE, Hansen LM, Ammentorp J. [Mailed reminders reduce non-attendance at a pediatric outpatient clinic. An intervention study]. *Ugeskr laeger* 2009; 171: 1368-71.
2. Kruse LV, Hansen LG, Olesen C. [Non-attendance at a pediatric outpatient clinic. SMS text messaging improves attendance]. *Ugeskr laeger* 2009; 171: 1372-5.
3. Christensen AA, Lugo RA, Yamashiro DK. The effect of confirmation calls on appointment-keeping behavior of patients in a children's hospital dental clinic. *Pediatr dent* 2001; 23: 495-8.
4. Hasvold PE, Wootton R. Use of telephone and SMS reminders to improve attendance at hospital appointments: a systematic review. *J Telemed Telecare* 2011; 17: 358-64.

Table 1: The impact of calling parents fifteen days prior to a planned visit at a paediatric clinic to remind them of the appointment:

	Intervention group	Control group	p-values
Total number of patients	2834	3421	NA
Patients attending	2238 (79%)	2660 (78%)	0.25
Early cancellation by the patients	275 (10%)	276 (8%)	0.023
No-shows and late cancellations	241 (9%)	381 (11%)	0.001
Cancelled by the clinic	80 (3%)	104 (3%)	0.61