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Impact of animation-supported communication on hospital do-not-attend rates

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Abstract

Background: Patients who do not attend diagnostic procedures increase costs and wait times and lose the intended benefits. Poor communication is a recognised cause of non-attendance. This study introduced an animation-supported communication pathway.

Methods: Multi-language animations to support patient information before they underwent a procedure for the implantation of a loop recorder were introduced at a hospital in London for evaluation. Patients received online access to the animations and selected one of the five available languages before their procedure. The do-not-attend rate of patients with 10 weeks of animation use (animation group) was compared with that of patients with 10 weeks of non-use (no-animation group).

Results: In the animation group, 8/75 (11%) patients did not attend, whereas in the no-animation group, 17/69 (25%) patients did not attend, indicating a 56% lower do-not-attend rate (P=0.03).

Conclusions: The use of pre-procedure multi-language animations correlates with a substantial reduction in the do-not-attend rate. This approach is not limited to implantable loop recorders and can be applied across specialties.

Key words: Animation, Implantable Loop Recorder, Do Not Attend

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Introduction

Non-attendance at hospital appointments, often known as 'do not attend', has a significant impact on the healthcare system in terms of increasing both costs and wait times. The estimated burden on the National Health Service (NHS) is £1 billion each year (Slawson, 2018).

The three most common reasons for not attending appointments are patients forgetting their appointment, clerical errors in booking and inadequate communication between the patient and doctor, leading to an incomplete understanding of why the appointment is required. Various strategies have been used to overcome the first two factors, such as sending text message reminders or overbooking appointment slots. However, little is routinely offered to improve communication, a key auditable standard in the NHS guidance for reducing the do-not-attend rates (Online Library of Quality Service Improvement and Redesign tools, 2021).

Multi-language digital animations describing medical procedures and their benefits, risks and alternatives have been shown to substantially improve communication and patient understanding before consent to treatment (Singh et al, 2019; Wald et al, 2020) and also to reduce complaints and serious incidents because of failure to inform (Wald and Arrol, 2021). Animations are increasingly used to support the consent pathway. On the basis of current knowledge, the impact of this approach on the do-not-attend rates has not been examined previously. This study aimed to evaluate this impact, focusing on a commonly performed minimally invasive procedure—the insertion of an implantable loop recorder—used to monitor heart rhythm in patients with palpitations, dizziness or a history of stroke.

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Methods

The evaluation was performed between 15 February and 25 June 2021 at St Bartholomew's Hospital, London, as part of a quality improvement project aimed at improving the consent pathway for patients before a procedure for the implantation of a loop recorder—an outpatient procedure requested by cardiologists and performed by physiologists at the study centre, as previously described (Lim et al, 2019). The Standards for Quality Improvement Reporting Excellence guideline for conducting and reporting quality improvement projects was followed (Ogrinc et al, 2016).

Explain My Procedure animation

An animation describing the insertion of an implantable loop recorder was created by Explain My Procedure Ltd. (www.explainmyprocedure.com). The animation comprised a 5-minute educational video explaining what the procedure involved and its potential benefits, possible risks and alternative diagnostic options. Each animation was accompanied by a voice-over translated from English into four other languages that the patients could choose: Bengali, Hindi, Turkish and Polish. These languages were selected based on the fact that these constitute the five most commonly spoken local languages in the study area.

The animations were accessible from a customised Explain My Procedure website. The patients received the link to this website and a QR code to access the animations online. The clinical pathway is shown in Figure 1. The animation was made available for a 10-week trial period to provide an opportunity to assess its value in service improvement and was then discontinued; this 10-week animation use period was compared with a 10-week non-use period—the overall duration of comparative evaluation was 20 weeks. Thereafter, continued use was possible through subscription (Figure 1). All patients received a text message as a reminder for their procedure for the implantation of a loop recorder as this was part of the standard practice in the study centre.

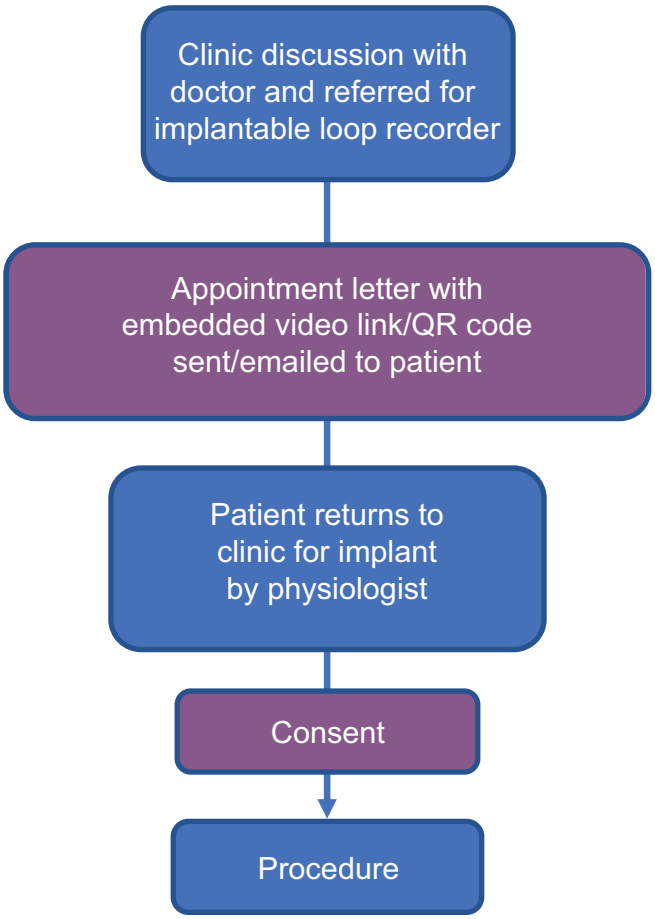

Figure 1. Patient pathway introducing Explain My Procedure into practice

Audit

The do-not-attend rates (the number of patients who attended their procedure for the implantation of a loop recorder divided by that of appointments scheduled) during 10 consecutive weeks of animation use before the procedure for the implantation of a loop recorder were compared with the rates for 10 consecutive weeks following the discontinuation of the service. Audit data were extracted from the hospital's electronic record system. Do-not-attend rates were compared using Fisher's exact test (two-tailed) and considered significant at $P<0.05$. The quality improvement project was an audit and did not require ethical approval. It was registered with the Clinical Effectiveness Unit at Barts Hospital NHS Trust.

Results

Table 1 shows that the patient characteristics in the animation and no-animation groups were well matched in terms of age, sex, primary language spoken and reason for undergoing the procedure for the implantation of a loop recorder. There were no statistically significant differences between the two groups. Figure 2 shows that the do-not-attend rates in the animation and no-animation groups were 11% and 25%, respectively—a 56% lower rate in the animation group, indicating a significant difference between the two groups ($P=0.03$).

Table 1. Patient characteristics

	Animation group (*N*=75), *n* (%)	No-animation group (*N*=69), *n* (%)
Number of men	43 (57)	43 (62)
Age (years)	55 (20–86)	54 (20–84)
Primary language spoken		
English	59 (79)	54 (78)
Bengali	3 (4)	4 (6)
Hindi	7 (9)	6 (9)
Turkish	2 (3)	2 (3)
Other*	5 (7)	4 (6)
Implant indications		
Syncope or dizziness	35 (47)	31 (45)
Stroke—atrial fibrillation detection	18 (24)	18 (26)
Palpitations	18 (24)	13 (19)
Rhythm monitoring	4 (5)	7 (10)

$P>0.05$ for all comparisons; *language not stated

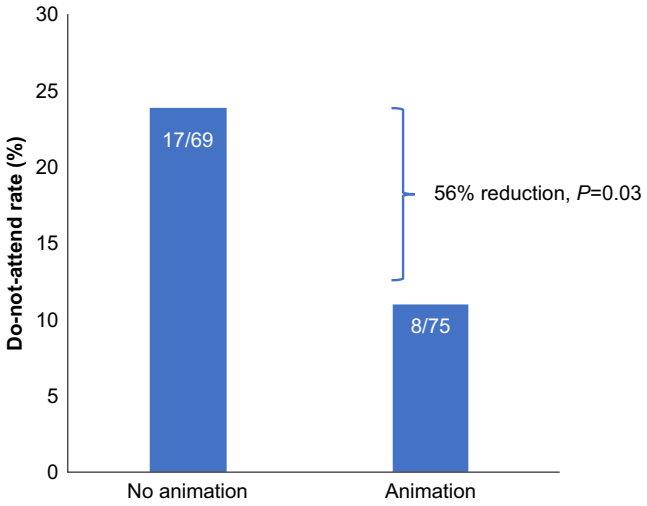

Figure 2. Do-not-attend rates in the no-animation and animation groups

Discussion

The findings showed a significantly lower do-not-attend rate (approximately half of the rate) when animation-supported communication was used to support the procedure for the implantation of loop recorder than the rate obtained in the absence of animation support.

Previous studies have indicated that the use of multi-language animations improves patient-reported understanding of a procedure as well as its benefits, risks and alternatives—the four key audit standards for valid consent (Singh et al, 2019; Wald et al, 2020). The use of the Explain My Procedure implantable loop recorder animation has been reported to be associated with high levels of complete understanding (>80%) in all four standards (Monkhouse et al, 2021). The present study findings extend the benefits of tackling high do-not-attend rates.

A do-not-attend rate of 25% is considered high compared with the reported rates for missing general practice appointments in the NHS (Rinciog et al, 2019) but not unexpectedly high for a procedure for the implantation of a loop recorder. Implantable loop recorders are typically offered to patients whose underlying cardiac problem may be infrequent or asymptomatic but potentially serious, such as ventricular tachycardia in a patient with syncope or paroxysmal atrial fibrillation in a patient with a stroke (Margham et al, 2021). Such patients may not fully understand the indication for the implant or the trade-off between benefits and risks, which leads to non-attendance. The current coronavirus disease 2019 pandemic might also have created hesitancy in visiting the hospital when symptoms appear to have resolved and the fear of infection is high. The 25% do-not-attend rate is consistent with non-attendance at general device clinics, such as follow-up clinics for patients with an implanted pacemaker, in the local service and is also consistent with the reported rates in other services where patients do not pay for their treatment (Penneys and Glaser, 2001).

The observed 56% reduction in the do-not-attend rate in the animation group is similar to that reported in other interventions focusing on patient forgetfulness and encouraging engagement rather than supporting communication. Text message reminders, for example, are associated with approximately a 50% reduction in the do-not-attend rate (Kiruparan et al, 2020) but, unlike an educational video, do not address the lack of patient understanding. Despite the significantly lower do-not-attend rate in the animation group, nearly 1 in 10 patients still failed to attend their procedure, which emphasises the need for a combined approach, for example, one that uses animation-supported communication, text messaging and an interactive booking system.

Strengths and limitations

The animations were available in the five most spoken languages in the authors' catchment area to widen access and reduce health inequalities. By including a link (an emailed URL or a printed QR code) to the animation within the usual patient communications, no significant additional burden to the existing administrative work was created. By providing the link immediately after the offer of treatment, the time for reflection between referral and procedure was maximised—time which was considerably wasted previously. These factors might have contributed to the observed favourable differences.

The comparison between the no-animation and animation groups was not randomised and, therefore, was prone to confounding by other activities that might have coincided to reduce the do-not-attend rate. However, the Explain My Procedure implantable loop recorder animations constituted the only systematic intervention distinguishing the two periods. Both periods coincided with the second wave of the coronavirus disease pandemic in 2021; thus, the external factors are unlikely to have biased the results. Adherence to the animation-supported pathway is unknown as is the proportion of patients with an internet-capable device; thus, the observed impact might have been underestimated, which indicates a potential for further improvement. However, the total number of views during the animation period was 264—more than twice the number of patient appointments scheduled—suggesting that adherence was reasonably high and patients viewed the animation more than once or perhaps with their families. The results also relate to a single large centre and thus may not be generalisable but may prompt other centres to undertake similar quality improvement initiatives and their own evaluations.

Key points

- Patients who do not attend their scheduled hospital appointments increase costs and wait times and lose the intended benefits.
- Novel interventions are needed to reduce do-not-attend rate.
- Multi-language digital animations explaining a common diagnostic procedure were developed and introduced into the patient pathway at a cardiac centre in London.
- During a 20-week consecutive comparative evaluation period, the do-not-attend rate was 56% lower in patients with access to the animations (8/75) than in those with no access (17/69).

Cost implications

The primary aim of the study was quality improvement but policy and practice changes are often driven by cost considerations. The incidences of non-attendance waste staff time and overheads for running an implant facility and incur extra administrative costs of rebooking appointments. In the United Kingdom, such costs may range between £750 and £1500 per incidence of non-attendance depending on whether healthcare is free at the point of need (NHS) or private (Murdock et al, 2002). On the basis of a conservative £1000 lost per incidence of non-attendance and 500 scheduled implants per year (the approximate median in the study unit), a 25% do-not-attend rate costs the provider nearly £125 000 each year. Animation-supported communication is expected to reduce this by 56% or approximately £70 000 each year. The Explain My Procedure service currently costs less than one-tenth of this each year. Introducing animation support is simple and has the potential to provide considerable value for money to support policy and practice improvement.

Conclusion

Improving communication in the patient pathway using animation support is associated with a substantial reduction in the do-not-attend rates. The approach is not limited to implantable loop recorders and can be applied to any specialty and clinical pathway where the incidence of non-attendance is a problem to potentially improve patient understanding and quality and reduce costs.

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Data sharing statement

All available data are included within the submitted manuscript.

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Explain My Procedure Ltd. provided access to the animations for free during the evaluation and, thereafter, by subscription. Requests to view and subscribe to the service can be sent to info@explainmyprocedure.com.

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Conflicts of interest

David S Wald is Director of Explain My Procedure which created and owns the animations used in this project.

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