



The impact of a reminder email on the return to care behavior of infertility patients after a first office visit: A quality improvement project

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ABSTRACT

Research question: Prior research has determined that up to half of infertility patients attend one visit with an infertility specialist but do not return for a diagnostic workup or treatment. As part of a quality-of-care improvement project, patients who had not returned after one visit with an infertility specialist received an email which asked why they had not returned. The return to care behavior was then compared to a period of time when the email was not sent out, to answer the question as to whether or not the email had a significant impact on behavior.

Design: From July 2017 to March 2018, 301 eligible patients who attended one visit but did not return to care received an email; 657 subsequent patients from April to December 2018 did not receive one. The email asked questions about that visit, offered support, contact information for the employee sending the email and why they had not returned.

Results: All patients were followed for 11 months after their initial visit. Forty-one percent of the email group returned to care, compared to 32% who did not ($P < 0.0014$). For those who gave a reason why they hadn't returned, 32% of the respondents conceived on their own, 3% transferred to another infertility center, 31% were taking a break, 3% were unhappy with their care, and 31% made a return to care appointment. Thus, the email was associated with a significant increase in return to care when compared to women who did not receive an email. The most common reason why patients did not return was spontaneous conception closely followed by taking a break.

Conclusions: A compassionate email sent after one visit may increase return to care behavior.

1. Research Question

There have been numerous investigations into the reasons why infertility patients terminate treatment. These include lack of insurance coverage, the emotional burden of care, the perception of a poor prognosis, and physician recommendation due to reasons such as diminished ovarian reserve, repeated treatment failure, etc. [1]. Even without physician recommendation, there is a shockingly high prevalence of early discontinuation of infertility treatment, affecting about 30% of couples [2,3]. In a longitudinal study by Pedro et al. female education level, level of engagement in ART procedures, female versus male causation, female age, and depression levels all impacted the likelihood of early treatment discontinuation. Female depression was the strongest predictor of discontinuation [1].

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Other studies have also shown patient distress and psychological burden to be leading reasons for discontinuation [2,4].

As infertility itself causes great levels of stress, with many patients reporting elevated levels of depression and anxiety, it is likely that infertility patients are at increased risk for early termination of treatment [5].

Compassionate care is of the utmost importance to clinicians and patients and is widely emphasized during training and practice. Compassionate care includes factors such as empathic communication styles, timely return of phone calls, sensitivity to financial limitations, inclusion of partner/family, and continuous patient contact. However, few studies have assessed the impact of compassionate care on patient well-being and outcomes [6]. Some patient reports demonstrate that receiving compassionate care can help recovery by increasing patients' feelings of control over their health or by allowing patients to feel understood, improving symptoms [7–9]. One randomized controlled trial with oncology patients showed that a simple compassionate intervention, a short enhanced-compassion videotape, reduced patient anxiety and improved perceptions of their physicians [10]. These findings suggest the possibility that acts of compassion may decrease anxiety for infertility patients, hence minimizing risk of early treatment discontinuation, though this area has yet to be explored.

In a similar vein, of 166 women about to undergo their first IVF cycle, half were randomized to receive a “stress-management” packet in the mail which included guided relaxations and cognitive coping suggestions. All participants were followed for a year, but not contacted. The women who received the packet were 67% less likely to drop out of treatment and also reported significantly less anxiety and increased quality of life. This suggests that relatively minor psychological interventions can have a big impact on patient retention as well as mental health [11].

Although it is well known that many patients fail to return to the clinic after their first visit with an infertility specialist, there is a paucity of research on the efficacy of any kind of intervention which may support them to return to care after this first visit.

This project began as a quality improvement project to determine why patients did not return after a first visit. It was observed that a surprising number of patients responded to the email by requesting a return visit, and a natural experiment ensued when the Research Coordinator was out for maternity leave and the emails were not sent for those months. Thus, this project was not subject to IRB review as it was not designed as a study and the findings were incidental. There was no patient identifying data utilized.

Based on the information in the Committee on Clinical Investigations Beth Israel Deaconess Medical Center POLICY & PROCEDURES manual, the authors of this manuscript in consultation with the department IRB liaison, determined that this project did not constitute “research” and thus did not require an IRB application. If one peruses the criteria below to constitute “research”, the project was not designed to study any phenomenon or to generate anything other than to find out why our clinic patients had not returned to care. The finding that the inquiry email may have changed patient behavior was an incidental discovery. This project also did not involve any protocol or time period. It was a project inquiry which was interrupted by the maternity leave of the employee who was contacting patients. The original intent of the project was to simply improve patient retention in one clinic.

“CCI Review Mechanisms 1. Scope: All protocols involving both “research” or “clinical investigations” and “human subjects” must be reviewed and approved by the IRB before recruitment and data collection may start. If the proposed activity clearly does not involve “research” or “clinical investigations” and “human subjects”, it does not require Revised 9/23/2021 CCI Policy and Procedure Manual 50 submission to the IRB. For some activities it might be difficult to tell whether they qualify as human subject research.” (page 49)

“The following are examples of criteria to consider that would generally distinguish whether an activity is research: • The activity is designed, that is involves a predetermined method to study some phenomenon to answer a question and generate new knowledge. Research typically involves a fixed protocol, goal, methodology, population and time period. • The intent is that the activity is undertaken to contribute to generalizable knowledge, not to provide immediate and continuous improvement and feedback in the local setting. Generalizable knowledge applies beyond a specific time and location.” (page 50).

1.2. Design

All women who presented for an initial consult with an infertility specialist at Boston IVF—a large academically affiliated fertility clinic—from July 2017 to March 2018, who did not return for a follow up visit within at least 3 months were considered for inclusion. The three-month time period was chosen to allow patients to make their return to care visit naturally; the authors did not want patients to feel pressured to come back immediately after their first visit.

The Clinical Research Coordinator (CRC) pulled a list of eligible patients meeting the basic entry criteria (did not return to care for at least three months after an initial consult). Furthermore, the CRC went through each individual patient chart to further determine if a follow up email was acceptable for the patients. The following patients were excluded from the emails: patients who were known to have achieved a pregnancy, already had a plan for treatment, had visited for an egg freeze consult, were using a donor egg or gestational carrier, were not advised to undergo treatment, and all LGTBQ (lesbian, gay, transgender, bisexual, queer, etc) patients (who were excluded simply because one of the reasons provided to patients for not returning to care was a naturally conceived pregnancy and since this is not feasible for the LGTBQ population, it was decided to exclude them from receiving the email for sensitivity purposes).

Because this was initially a quality improvement project, the email was not validated and thus can not be considered a questionnaire per se. It was designed simply to determine why patients had not returned to care and to invite them to speak to a clinic employee if they had questions or wanted to schedule a second visit.

All non-excluded patients' whose e-mail addresses were included in their contact information were sent an email asking if they had any questions about their visit, offered support to the patient, and asked them to select a reason why they did not return for treatment (see [Appendix A](#) for sample email). The options for not returning to care were as follows: decided to be treated at another infertility center; holding off on treatment/taking a break; pregnant on our own; unhappy with the care received/experience at Boston IVF. There

was also an opportunity to write in a response or provide further feedback.

The CRC's contact information was included in the email to serve as a patient liaison for those who replied to the message. When a patient replied to the message, the CRC replied with an individualized response. For example, if someone reported a pregnancy, an email congratulating them was sent in return. If a patient was taking time off, a reply offering support and assistance when they were ready was sent. When a patient wanted to return to care, the patient was put in touch with their physician team to book a follow up and review next steps.

The email (see [Appendix A](#)) was sent only one time; it was not sent again to non-respondents. It was also not sent to the 346 excluded patients.

The CRC documented the reasons patients did not return to care in Excel. The items were coded based on the four reasons listed in the outreach email. Additional feedback was documented for qualitative data.

Return to care time was calculated via Excel formulas and patients were summarized in bucket groups through Pivot Tables. A natural experiment ensued when the CRC took a maternity leave; no emails were sent to patients with initial consults between April 2018 and December 2018 who did not return to care for at least 3 months. No other change of patient contact practice was initiated during the trial period.

In the first phase of this study, the CRC identified a total of 301 eligible patients, and contacted them with the email outreach. A total of 116 patients replied to the email. To accurately compare the two groups, it was decided to include all patients who presented for an initial consult between July 2017 and March 2018 but did not return to care for at least 3 months. No patients were excluded from this population, bringing it to a total of 647 patients in the Email (E) group (301 of which who were contacted by the CRC and 116 of whom replied to the email) and 657 in the No Email (NE) group; these are the total of patients reported in the result section. All patients were then followed for 11 months after their initial visit to observe return to care behavior.

An attempt was made to do a thorough chart review of the 657 patients in the NE group, using the same exclusion criteria as with the E group. However, despite numerous attempts by several researchers, the same information was not able to be obtained so as to have the ability to compare two equivalent groups. Thus, the decision was made to in effect follow an intent to treat model of analysis, and the entire group of 647 was included in the E group, even though less than half in fact received the compassionate email.

2. Results

The main outcome variable of interest in this study was whether or not patients attended a follow up appointment after their period of absence, i.e. their "return to care" behavior. Patients who had an initial visit between July 2017 and March 2018 and then did not return for at least three months were in the E group. Of the 647 patients in the E group, 301 were at that point in time deemed "eligible" and were contacted by the CRC, resulting in 116 responses to the CRC's email. Patients who had an initial visit between April 2018 and December 2018 and did not return for at least three months were the NE group ($n = 657$).

Each group was analyzed within a 3–11 month return to care window in order to create a comparable time frame and not allow for the first grouping to have disproportionate time to return. The 3–11 month range originated as the CRC contacted patients on average of 3–5 months after their initial consult with the email. Patients return to care behavior was tracked for up to 11 months to allow adequate time to return, thus a range of 3–11 months for returning to care after initial consult was utilized. Using the 3–11 month return to care window, 41% of the E patients returned to care, compared to 32% of the NE group ([Fig. 1](#)). The statistical analysis utilized was a Chi-Squared test and this difference between groups was significant ($p = 0.0014$). These results indicate that the email was associated with a dramatically increased return to care rate. [Tables 1 and 2](#) display the percentage of patients who returned to care by the month in which they returned, stratified by E group ([Table 1](#)) and NE group ([Table 2](#)). [Diagram 1](#) displays the timed differences between the groups in return to care behavior.

Of the 301 patients contacted in the E group, 116 (38.5%) replied to the email. For the patients who responded with answers as to why they had not returned, 32% of patients reported that they had conceived on their own, 31% reported that they were taking a break or holding off on treatment, 3% reported they had transferred their care to another infertility center, and 3% stated they were unhappy with their care in their initial visit. The remaining 31% who replied made a follow-up appointment to continue their care ([Fig. 2](#)).

3. Conclusions

The data from this quality improvement project indicates that the simple intervention of a compassionate reminder email may significantly increase patient return to care behavior. This finding contributes to the growing body of literature assessing the high discontinuation rate of infertility patients by presenting a technique which may mitigate early dropout behaviors. It also demonstrates how compassionate and attentive care can impact patient behavior and potentially lead to more successful patient outcomes. These results replicate an earlier survey; patients who reported being offered emotional "support" were twice as likely to continue on to treatment than patients who were not offered support [[12](#)]. Continuing infertility treatment increases the probability of successful pregnancy [[3,13–15](#)].

The actual reasons why patients did not return to care are noteworthy as well. The fact that 32% of those who gave a reason reported conceiving on their own is interesting-presumably these patients had met the criteria for infertility (one year of unprotected intercourse), after which spontaneous conception becomes less likely. It is possible that the physician made some simple suggestions to increase the chances, such as at-home ovulation monitoring, or changes in lifestyle behavior such as weight loss, smoking cessation, etc. The 31% who reported "taking a break or holding off on treatment" echoes previous research which indicates that many patients are extremely hesitant to initiate treatment and appear convinced that they will conceive naturally with time [[12](#)].

The strengths of this study include a large sample size and an answer to an unanswered question (can as simple an intervention as a gentle email significantly increase return-to-care behavior?). Additional strengths include the collection of data over a significant time period, the study being conducted in a large academic center/urban center in a state with a strong insurance mandate to cover infertility, which served to include a heterogeneous patient population and thus reached members of different demographics and a variety of socioeconomic backgrounds. Another strength was that there was a single clinical research coordinator who contacted all patients, which avoided inconsistency.

A significant limitation of this study was that because this was designed as a quality improvement project which turned into a natural experiment, rather than a randomized controlled trial, causal conclusions cannot be drawn atop the correlation between the follow up email and the increase in return to care rates. It follows that due to the nature of the project being prospective rather than randomized, another major limitation is the inclusion of all patients from the initial time period in the E group, regardless of whether or not they received the email. This was done to adequately compare the groups from both time periods. However, only a portion of the E group received the email. Comparing those who were eligible to receive the email with those who would have been eligible but were in the NE group time frame would have increased the understanding of the impact of this intervention, but the methods of this project did not allow for a comparable way to do this. And in fact, one can hypothesize that if all 647 of the E participants had in fact received the email, the percentage returning to care could have been even higher.

Another potential limitation of this study is the possibility of a time trend bias. Because the E group and the NE group were analyzed in two separate, though sequential, time periods, there is the possibility that some outside factor associated with one of the time periods contributed to skewed results for return to care rate. Though there is no obvious contextual difference between the two time periods which may have biased results one way or another, the chance of a bias cannot be ruled out. Clinical care of new patients did not change in that time period.

With these limitations in mind, performing an RCT with both groups in the same time period could further corroborate the results found in this project.

The evidence that a simple compassionate email may alter patient behavior supports the call for further RCTs to investigate the effects of compassionate care interventions on patient well-being and health outcomes. An understanding of patients' rationale could help tailor compassionate interventions to infertility patients' needs and further increase patient retention rates.

Author contribution statement

Alice D. Domar; Kristin Rooney: Conceived and designed the experiments; Performed the experiments; , materials, analysis tools or data; Wrote the paper. Daniel Duvall: Analyzed and interpreted the data; materials, analysis tools or data.; Natalie Gulrajani: Analyzed and interpreted the data; materials, analysis tools or data; Wrote the paper.

Data availability statement

Data will be made available on request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e19705>.

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