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The Effects of Text Message Reminder on Blood Donor Show Rate

Briggs, B.1, Frascoia, A.1, Petrov-Kondratov, V.1, Rivard, S.1, Thai, P.1, Wendell, L.1, Williams, M.1, Dembeck, C2, Nattress, P.2, Wilson, R.2, Carney, J.1, Fung, M.K.1

1University of Vermont College of Medicine, Burlington, VT; 2American Red Cross- Northern New England Region, Burlington, VT

INTRODUCTION
Declining blood collection endangers the blood supply at a time when the health care system is requiring an increasingly greater amount of blood products (1). Blood donation centers are challenged to recruit and develop first-time donors into reliable repeat donors, thereby ensuring a sufficient blood supply (2). Communication strategies such as e-mail reminders have been shown to be an effective communications tool to promote blood collection (3). Alternatively, Text Messaging has been shown effective in primary care and preventative medicine. Text messaging improved patient compliance with a schedule of vaccine dosing (4), as well as improving patient attendance at outpatient clinics (5, 6).

Additionally, text messaging reminders have been shown to be as effective as phone reminders in increasing patient attendance at outpatient appointments (7, 8). Finally, text messaging has been shown to be useful for managing self-care such as smoking cessation, monitoring asthmatic symptoms, and diabetes control. (9, 10, 11, 12). We investigated whether offering the use a text message reminder to donors would increase attendance at donation events, demonstrating that text messaging can be an effective tool in maintaining a pool of blood donors.

METHODS
The participants in this study were registered donors for the American Red Cross who were contacted to donate blood between October 5th and 19th at the Manchester, NH donation center. Donors who had scheduled appointments during these dates were placed into four groups (see flow chart).

• Those interested in a text message reminder were randomized via alternating every other donor into group 3 or group 4. In order to receive a text message reminder, the donors had to text a code to the messaging service. The text message reminder was sent the morning of the appointment. Donors in all groups received a telephone appointment reminder.

• Information regarding age, gender, and attendance was gathered from the Red Cross presenting donor list. The total number of participants that used the service was gathered.

• Differences in gender and show rate between groups were analyzed using Fisher’s exact test was used. Differences in age was measured using Student’s T Test. A p value of 0.05 was considered statistically significant.

• When designing the study, the literature showed an average of 10% change in attendance rate for medical appointments with the use of text message reminders. Using the criteria of a minimum attendance rate of 40%, a sample size of 400 for each arm of the study was desired.

RESULTS

| Use text messaging?
<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>Randomized to receive text message reminder</td>
<td>No code given</td>
<td>Code given</td>
</tr>
<tr>
<td>Group 1</td>
<td>n=65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>n=17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
<td>n=15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 4</td>
<td>n=16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

•42% (48/113) of donors use text messaging

•65% (31/48) of donors who are text messaging users were interested in receiving text reminders

•13% (2/16) of those interested in text message reminders actually opted in

•The data suggests that those who use text messaging are younger (Avg. age: 42.6 vs. 51.5, p<0.001) with no difference based on gender (p>0.05).

•No significant difference was found between donors who were allowed to use text messaging reminders (group 4) vs. those who were not (group 3, P=0.48, Fisher’s exact test).

ADDITIONAL RESULTS

• Information regarding age, gender, and attendance was gathered from the Red Cross presenting donor list. The total number of participants that used the service was gathered.

• Differences in gender and show rate between groups were analyzed using Fisher’s exact test was used. Differences in age was measured using Student’s T Test. A p value of 0.05 was considered statistically significant.

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RESULTS

<table>
<thead>
<tr>
<th>Participant</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Age</td>
<td>51.5</td>
<td>42.3</td>
<td>45.5</td>
<td>40.2</td>
<td>47.8</td>
</tr>
<tr>
<td>Percent</td>
<td>52%</td>
<td>47%</td>
<td>50%</td>
<td>50%</td>
<td>51.3</td>
</tr>
<tr>
<td>Show up rate</td>
<td>51.4%</td>
<td>29.4%</td>
<td>40.0%</td>
<td>56.2%</td>
<td>50.8</td>
</tr>
<tr>
<td>Avg age of Donors</td>
<td>51.6</td>
<td>55.2</td>
<td>48.7</td>
<td>39.4</td>
<td>48.8</td>
</tr>
<tr>
<td>Percent of donors that were female</td>
<td>27.7%</td>
<td>11.8%</td>
<td>20%</td>
<td>18.8%</td>
<td>23%</td>
</tr>
<tr>
<td>Avg age of no show Donors</td>
<td>51.4</td>
<td>36.5</td>
<td>40.6</td>
<td>40.4</td>
<td>45.0</td>
</tr>
<tr>
<td>Percent female no show</td>
<td>24.6%</td>
<td>35.3%</td>
<td>26.7%</td>
<td>31.3%</td>
<td>27.4%</td>
</tr>
</tbody>
</table>

LEARNING POINTS
We learned how much structure is needed when designing a randomized study and the importance of incorporating a large population to obtain statistic significance results, while minimizing the steps in which the study depends on the active involvement of participants may positively affect results. We also learned about the different operator systems utilized by Burlington, VT and Manchester, NH when calling their donors and the dedication in which they follow up with their donors.

ACKNOWLEDGEMENTS
Special thanks to the American Red Cross Manchester Tele-recruitment and Donor Centers for all their help.