

Short communication

Content of text messaging immunization reminders: What low-income parents want to know

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ABSTRACT

Objective: The purpose of this project was to gather preliminary data on preferred content for text reminders sent to low-income parents.

Methods: A brief, IRB-approved survey was administered to 200 consecutive English-speaking parents of children under 6 years old at a Pediatric Residency clinic. Because text messages can hold only limited content, parents were given three example texts ranging from very basic to very specific information and asked to select the information they would wish to receive.

Results: Of the 190 parents (95%) who responded, 22.1% (42) were Hispanic and 76.3% (145) were non-Hispanic. Over 80% (153) received Medicaid. Of the 79.5% (151) of respondents interested in receiving text messages who responded to the question regarding content, nearly 50% (74) preferred Option 2, with the remaining respondents divided between Option 1 (43) and Option 3 (35). Results differed significantly between Hispanic and non-Hispanic respondents ($\chi^2(2) = 6.36, p = 0.042$).

Conclusion: The majority of parents preferred a message containing the child's name, specific immunization information and physician information. However, Hispanic respondents were significantly more likely to endorse an option that included additional information.

Practice implications: Text messaging may be an optimal vehicle for provider–patient communication, however cultural differences should be considered when developing messages.

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1. Introduction

Parents are open to receiving text messages for immunization reminders [1,2]. This is important because text messaging has been found to be more cost effective than traditional methods of reminders [3–5]. In addition, cellular phones have penetrated at-risk populations, such as low-income families [6], at a much higher rate than computers and internet access. Text messaging may be an ideal avenue to provide immunization reminders to promote the 4-3-1-3-3-1 series among children 2 years of age and younger in order to reduce the incidence of vaccine-preventable diseases.

However, text messaging is not without its problems. Text messages are restricted to 160 characters limit. This means that the information provided in text messages needs to not only be relevant to parents, but also brief. While the CDC endorses patient reminders for immunizations, it also acknowledges that reminders vary in their level of personalization and specificity of content [7].

In order to develop an effective text message immunization reminder system, it is important to consider the preferred content of parents. Focus group participants [2] have suggested the content should be simple, short and personalized. As part of a larger study, the purpose of this project was to gather preliminary data on the preferred content for text reminders sent to parents.

2. Methods

A brief, IRB-approved survey was administered to 200 consecutive English-speaking parents of children under 6 years of age at a Midwestern Pediatric Residency clinic, as described elsewhere [1]. Because text messages can hold only limited content, parents were given three example texts with 160 characters or less and asked to select the information they would wish to receive (see Fig. 1). Option 1 included only a generic reminder. Option 2 included a more specific reminder with the type of immunization needed and the due date, as well as the doctor's name and phone number. Option 3 included everything from Option 2, with the addition of the purpose of the immunization, i.e. to protect from diseases. Few abbreviations were used because parental familiarity with “text shorthand” was unknown.

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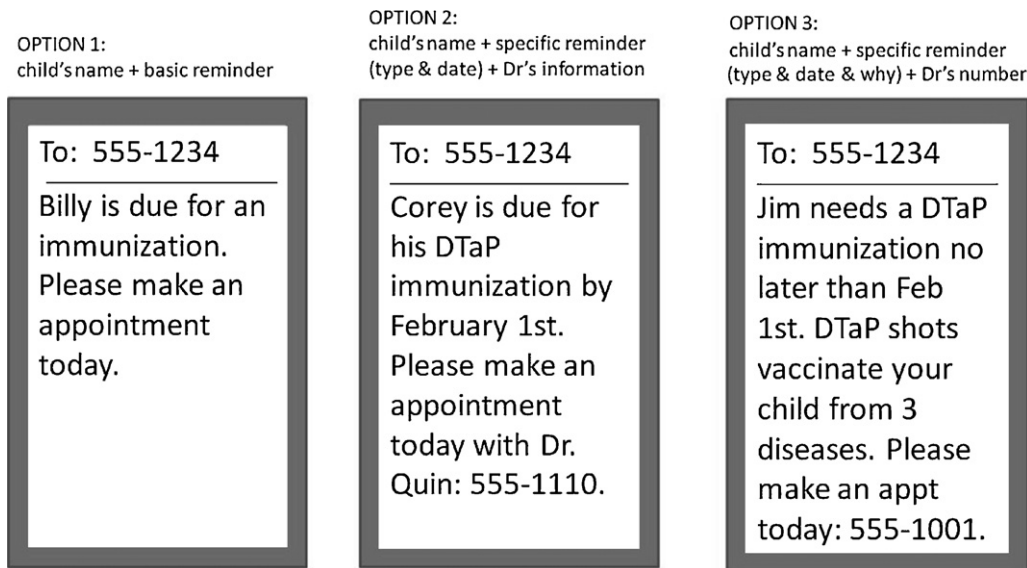


Fig. 1. Sample text message content.

3. Results

Of the 190 parents (95%) who responded, nearly 87% were female (165). Twenty-two percent (42) were Hispanic, 76% (145) were non-Hispanic and the remaining 2% (3) did not respond. The majority of non-Hispanic participants were white (93; 64%), followed by African American (37; 25.5%), Asian (6; 4.1%) and Other (9; 6%). Over 80% (153) received Medicaid, while of the remainder 6.3% (12) had private insurance, 6.8% (13) had no insurance, 0.5% (1) identified an "other" form of insurance, and 5.8% (11) chose not to respond.

The majority of both Hispanic (28/42; 67%) and non-Hispanic (124/145; 86%) respondents were interested in receiving text messages. The difference was not significant ($\chi^2(2) = 0.573$, $p = 0.449$). Of the 80% (152) of respondents who were interested in receiving text messages and responded to the question regarding content preference, nearly 50% (74) preferred Option 2, with the remaining respondents divided between Option 1 (43) and Option 3 (35).

To determine whether message preference differed by ethnicity, a χ^2 analysis was performed. Results differed significantly between Hispanic and non-Hispanic respondents ($\chi^2(2) = 6.36$, $p = 0.042$). Both Hispanic (13/28; 46%) and non-Hispanic (61/124; 49%) respondents preferred Option 2. However, Hispanic respondents were much more likely to endorse Option 3 (11/28; 39%) than non-Hispanics (24/124; 19%).

4. Conclusions

Utilizing text messages as a vehicle for immunization reminders will only be successful if optimal content is identified. Although all example messages were "concise, user friendly, and written at their level of understanding" [8], preferences between options emerged. The majority of parents favored a message containing the child's name, specific immunization information (type of immunization and due date) and physician information (name and phone number). However, Hispanic respondents were significantly more likely to endorse an option that included additional information, while non-Hispanic respondents preferred messages containing less information. This may be because Hispanic children are less likely to have a medical home [9] and may be more likely to need the physician information provided in Options 2 and 3. However, Options 2 and 3 also included additional information regarding the immunizations

themselves, such as type and/or purpose. It is also possible that Hispanic respondents desired additional information regarding the purpose or need for such immunizations in order to allay concerns or improve their health literacy regarding immunizations.

This study has several limitations. To begin, the response choices were fixed, so parents were not able to write in their ideal text message content. The survey was available only in English and Hispanic parents were not asked in what language they would prefer to receive texts. In addition, the non-Hispanic group was comprised of a variety of races. Differences may exist between these races, but our sample lacked power to assess these differences. The survey was administered in one geographic region. However, the region was chosen due to the fact that only 66% of children receive the full 4-3-1-3-3-1 series by 2 years of age [10]. Further study with greater numbers of Hispanic, as well as Spanish-speaking respondents is needed to assess whether there are differences in preferred content between these groups.

5. Practice implications

Text messaging may be an optimal vehicle for provider-patient communication as long as attention is paid to the importance of content within the 160 characters limit. Hispanic patients may have different content preferences and therefore cultural differences should be considered when developing messages.

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References

- [1] Ahlers-Schmidt CR, Chesser A, Hart T, Paschal A, Nguyen T, Wittler R. Text messaging immunization reminders: Feasibility of implementation with low-income parents. *Prev Med*. Available at <http://www.ncbi.nlm.nih.gov/entrez/>

- query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=20178813 [accessed 16.03.10].
- [2] Kharbanda EO, Stockwell MS, Fox HW, Rickert VI. Text4Health: a qualitative evaluation of parental readiness for text message immunization reminders. *Am J Public Health* 2009;99:2176–8.
- [3] Downer SR, Meara JG, Da Costa AC, Sethuraman K. SMS text messaging improves outpatient attendance. *Aust Health Rev* 2006;30:389–96.
- [4] Geraghty M, Glynn F, Amin M, Kinsella J. Patient mobile telephone 'text' reminder: a novel way to reduce non-attendance at the ENT out-patient clinic. *J Laryngol Otol* 2008;122:296–8.
- [5] Leong KC, Chen WS, Leong KW, Mastura I, Mimi O, Sheikh MA, et al. The use of text messaging to improve attendance in primary care: a randomized controlled trial. *Fam Pract* 2006;23:699–705.
- [6] Blumberg S, Luke J. Wireless substitution: early release of estimates from the National Health Interview Survey, July–December 2007. National Center for Health Statistics, Centers for Disease Control and Prevention; 2008. Available at <http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200805.pdf> [accessed 16.03.10].
- [7] Immunization strategies for healthcare practices and providers. In: Atkinson WWS, Hamborsky J, McIntyre L, editors. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. Washington DC: Centers for Disease Control and Prevention; 2009. Available at <http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/strat.pdf> [accessed 04.03.10].
- [8] Evers DB. Teaching mothers about childhood immunizations. *MCN Am J Matern Child Nurs* 2001;26:253–6.
- [9] Raphael J, Guadagnolo A, Beal A, Beal AC, Giardino AP. Racial and ethnic disparities in indicators of a primary care medical home for children. *Acad Pediatr* 2009;9:221–7.
- [10] Lawlor E. Retrospective immunization coverage survey: 2004–2005 results (school year 2008–2009). Kansas Department of Health and Environment. Available at <http://www.cdc.gov/mmwr/PDF/wk/mm5833.pdf> [accessed 15.03.10].