



Published in final edited form as:

Clin Pediatr (Phila). 2015 October ; 54(11): 1107–1109. doi:10.1177/0009922814557787.

Communication From Primary Care Practices Regarding Adolescent Immunization

Sarah J. Clark, MPH¹, Sarah L. Reeves, PhD, MPH¹, Acham Gebremariam, MS¹, Shannon Stokley, MPH², and Kevin J. Dombkowski, DrPH, MS¹

¹University of Michigan, Ann Arbor, MI, USA

²National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA, USA

Introduction

Primary care practices often remind patients and parents about upcoming appointments or needed immunizations, a strategy shown to be effective in a range of settings, using a variety of methods.¹ Immunization reminders may be a particularly valuable strategy for increasing adolescent immunization coverage rates, which are lower than rates for the primary series, as parents may be unaware of recent additions to the recommended immunization schedule for adolescents.² Also, with the large time gap between kindergarten booster shots and adolescent doses, parents may forget about the need to continue with vaccination. In addition, adolescents are less likely than younger children to visit primary care practices, leading to limited opportunities to catch-up immunizations.³

Traditionally, reminders have been sent through mail and calls to home phones; in recent years, text messaging has been used in limited instances.^{4,5} Our objective was to assess the degree to which parents of adolescents have received reminders, the mode of contact for those messages, parents' preferences for future reminders, and stability of contact information for different communication modes.

Methods

In conjunction with the C.S. Mott Children's Hospital National Poll on Children's Health, we conducted a nationally representative, cross-sectional survey of parents of children 0 to 17 years old in June 2013, using GfK Custom Research's Web-enabled KnowledgePanel®. Survey questions, adapted from a prior study of parent experiences and preferences around immunization reminders,⁶ explored parents' receipt of reminder messages for upcoming

Reprints and permissions: sagepub.com/journalsPermissions.nav

Corresponding Author: Sarah J Clark, Child Health Evaluation and Research Unit, University of Michigan, 300 North Ingalls, 6E06, Ann Arbor, MI 48109-5456, USA. saclark@umich.edu.

Authors' Note

The findings and conclusions are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

appointments or immunizations, the mode of contact (postal mail, call to home phone, call to cell phone, e-mail, or text message), parents' preferred mode for future reminders, as well as the most recent change in parents' street address, home phone number, cell number, and primary e-mail address. GfK provided de-identified data and Census-based poststratification weights used to match the US population distribution on gender, age, race/ethnicity, education, and Census region. Analysis focused on parents of adolescents aged 11 to 17 years. Frequency distributions were generated. Unweighted frequencies and weighted proportions are presented.

The study was approved by the University of Michigan Medical School Institutional Review Board.

Results

Among 2783 parents invited to participate, 1420 (51%) completed the survey; 787 (52%) of these were parents of adolescents aged 11 to 17 years. Parents reported the site of routine health care for these adolescents as follows: 69% private office, 15% hospital-affiliated or health maintenance organization clinic, 10% community health center, public clinic, or urgent care center, and 2% other setting; 4% indicated their adolescent had no place of routine care.

Overall, 74% (n = 558) of parents of adolescents had received an appointment reminder and 47% (n = 365) had received an immunization reminder. The communication modes for these reminders varied (Table 1). Call to a home phone was the most frequent mode for appointment reminders, while mail was the most frequent mode for immunization reminders. Parents were divided in their preferences for future notifications; no single mode was endorsed by more than 35% of parents. Parent contact information, particularly e-mail, was generally stable, although one quarter of parents had changed their home address, home phone number, or cell number within the prior 3 years, and 22% of parents reported no home phone (Table 2).

Discussion

These findings highlight important differences between parents' experiences with communication from their child's primary care practice and their preferences for future communications regarding adolescent immunization. The level of future preference for home phone, cell phone, and postal mail reminders was less than parents' prior experience with those modes. In contrast, level of future preference for e-mail and text reminders was higher than parents' prior experience with reminders delivered through these methods. Although the most frequently endorsed contact mode was home phone, nearly one quarter of parents reported not having a home phone, consistent with national trends.⁷

The survey results indicate that primary care practices may need to offer several contact approaches to align with the availability of and preferences for different communication modes. These findings are particularly relevant given the specified criteria from the Centers for Medicare and Medicaid Services for the Meaningful Use Incentive Program, which

specify that providers must identify and provide their patients with appropriate preventive care reminders delivered through the patient's communication preference.⁸

In addition to parent preference, the volume and complexity of information conveyed may differ by the type of reminder message. For example, an appointment reminder may be brief, outlining key points (appointment time, location, check-in procedure); immunization reminders typically require more detailed information. Thus, communication modes are not necessarily interchangeable; careful consideration is necessary to determine which mode is best suited for the specific purpose of the reminder. Mailed reminders allow for detailed messages, but delivery cannot be assured. Outdated address information for adolescents, especially given the gap between kindergarten booster shots and adolescent immunizations, has been shown to be particularly problematic.⁹ Phone calls or voicemails are useful for brief reminders; however, high-volume phone messaging requires an automatic dialer system or substantial manpower. Text messages have limited capacity for detailed information, but can be used for targeted reminders in which little information is required, such as notification that flu vaccine is available.^{4,5} Email reminders can convey detailed information, such as up-to-date status across multiple vaccines, and offer the potential to immediately know about incorrect contact information through undeliverable messages. Moreover, e-mail was shown in this study to have the most stable contact information over time. However, prior work suggests that the business systems for many primary care practices do not contain accurate email contacts for unique patients.¹⁰

There are limitations to this study. Survey questions focused on reminders from the child's primary care practice at any age; parents may have reported reminders from different senders (eg, local health departments), and for younger ages. Also, parents may not remember details of reminders sent in the past.

Conclusion

Parents have varying preferences regarding the communication mode of immunization reminders. Choice of communication mode should reflect parent preferences, as well as the purpose and level of detail of the reminder. Primary care practices should assess parent preferences regarding reminders, and modify their business systems as needed to accommodate additional modes of contact.

Acknowledgments

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by the Centers for Disease Control and Prevention (U01 IP000316).

References

1. Guide to Community Preventive Services. Increasing appropriate vaccination: client reminder and recall systems. <http://www.thecommunityguide.org/vaccines/clientreminder.html>. Updated June 3, 2014. Accessed September 22, 2014.
2. Elam-Evans LD, Yankey D, Jeyarajah J, et al.; Immunization Services Division, National Center for Immunization and Respiratory Diseases; Centers for Disease Control and Prevention (CDC).

- National, regional, state, and selected local area vaccination coverage among adolescents aged 13–17 years—United States, 2013. *MMWR Morb Mortal Wkly Rep.* 2014;63(29):625–633.25055186
3. Rand CM , Shone LP , Albertin C , Auinger P , Klein JD , Szilagyi PG . National health care visit patterns of adolescents: implications for delivery of new adolescent vaccines. *Arch Pediatr Adolesc Med.* 2007;161:252–259.17339506
 4. Stockwell MS , Kharbanda EO , Martinez RA , et al. Text4Health: impact of text message reminder-recalls for pediatric and adolescent immunizations. *Am J Public Health.* 2012;102:e15–e21.
 5. Ahlers-Schmidt CR , Chesser AK , Nguyen T , et al. Feasibility of a randomized controlled trial to evaluate Text Reminders for Immunization Compliance in Kids (TRICKs). *Vaccine.* 2012;30:5305–5309.22750044
 6. Clark SJ , Butchart A , Kennedy A , Dombkowski KJ . Parents' experiences with and preferences for immunization reminder/recall technologies. *Pediatrics.* 2011;128:e1100–e1105.22007019
 7. Blumberg SJ , Ganesh N , Luke JV , Gonzales G . Wireless substitution: state-level estimates from the National Health Interview Survey, 2012. *Natl Health Stat Rep.* 2013;1–16.
 8. Centers for Medicare and Medicaid Services. Eligible Professional Meaningful Use Menu Set Measures, Measure 4 of 9, Stage 1 (2014 Definition). http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentive-Programs/downloads/4_Patient_Reminders.pdf. Updated May 2014. Accessed August 5, 2014.
 9. Dombkowski KJ , Reeves SL , Dong S , Stevenson J , Clark SJ . Assessing the burden of undeliverable immunization reminder and recall notifications. *Prev Med.* 2011;53: 424–426.22001688
 10. Dombkowski KJ , Cowan AE , Costello LE , Fisher AM , Clark SJ . Feasibility of automated appointment reminders using email. *Clin Pediatr.* 2014;53:1004–1007.

Table 1.

Communication Modes for Reminder Notices Received From Adolescent's Health Care Provider.

Mode of Communication	Received Reminder About Upcoming Appointment (n = 588)^a (%)	Received Reminder for Immunization (n = 365)^a (%)	Preference for Receipt of Reminder (n = 599)^b (%)
By mail	24	46	16
Call to home phone	53	34	35
Call to cell phone	34	24	21
E-mail	14	14	18
Text message	4	2	8
Other	N/A	N/A	1

^aParents could select multiple categories for received reminders so columns sum to greater than 100%.

^bParents who had received at least 1 reminder from the adolescent's health care provider.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2.

Recency of Changes to Contact Information for Parents of Adolescents (n = 773).

	Home Address (%)	Home Phone Number (%)	Cell Phone Number (%)	E-mail Address (%)
Within previous 6 months	7	5	8	3
Within previous 7–12 months	5	8	5	2
Within previous 1–3 years	13	12	12	11
More than 3 years	70	54	66	77
N/A—Do not have	5	22	8	7

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript