

Optimizing Human Papillomavirus Immunization: The Role of Centralized Reminder and Recall Systems

Sarah Geoghegan, MB, BCh, BAO,^{a,b,c} Kristen Feemster, MD, MPH, MSPHR^{a,d,e}

Achieving adequate human papillomavirus (HPV) vaccine coverage has been challenging worldwide. In 2018 in the United States, 51.1% of adolescents completed the full vaccine series, and 68.1% had received ≥ 1 doses.¹ Optimizing uptake among adolescents has been a focus of public health departments, federal advisory groups, health service researchers, and clinicians. Although the trend is toward continued improvement, much work is needed to achieve optimal immunization rates.

Reminder and recall has been an important strategy for improving immunization rates and is included as a key quality improvement strategy in the Centers for Disease Control and Prevention's Immunization Quality Improvement Program, yet some practices may not have adequate resources to perform reminder and recall activities. Leveraging immunization information systems to identify adolescents who are missing recommended vaccines for centralized reminder and recall provides an opportunity to broadly implement this approach. However, in the study by Szilagyi et al,² published in this issue, centralized autodialer reminder and recall from state immunization information systems did not improve HPV vaccination initiation or completion in New York and had only a slight effect in Colorado on the adjusted analysis. These largely negative findings were contrary to the authors' hypothesis given the success of

similar centralized recall systems for childhood vaccinations.³ This discrepancy may reflect changing trends in communication preferences as well as unique drivers of HPV vaccine acceptance.

The intervention in this study relied on robocalls. In the current era of nuisance robocalls, the authors correctly point out that autodialing may be less effective than it was in the past because parents ignore calls from unrecognizable numbers. Additionally, although the success of centralized recall systems for childhood vaccination has been demonstrated, a similar benefit has not been clearly demonstrated for adolescent vaccines. A recent Cochrane review of patient reminder and recall interventions to improve immunization rates included 7 studies examining the impact of centralized autodialing. A positive effect was shown overall; however, at the subgroup analysis, centralized autodialing did not have a significant impact on improving adolescent vaccine uptake. Instead, text message reminders and multicomponent interventions that combined letters and phone calls were more effective.⁴ These differences suggest that the mode of communication is important. Recall methods of choice appear to differ among different parent groups; thus, understanding preference is important.^{5,6} A pragmatic randomized controlled trial in Colorado revealed the effectiveness of preference-based

^aChildren's Hospital of Philadelphia, Philadelphia, Pennsylvania; ^bSchool of Medicine, University College Dublin, Dublin, Ireland; ^cNational Children's Research Centre, Dublin, Ireland; ^dDepartment of Pediatrics, University of Pennsylvania, Philadelphia, Pennsylvania; and ^ePhiladelphia Department of Public Health, Philadelphia, Pennsylvania

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Address correspondence to Kristen Feemster, MD, MPH, MSPHR, Vaccine Education Center, Children's Hospital of Philadelphia, 3401 Civic Center Blvd, Philadelphia, PA 19104. E-mail: feemster@email.chop.edu

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recall in achieving HPV vaccine series completion.⁶

Effectiveness of reminder and recall strategies may also be impacted by vaccine hesitancy. HPV vaccination has been particularly subject to hesitancy primarily due to beliefs that the vaccine is unnecessary for younger adolescents and unfounded concerns about vaccine safety.⁷ Reminder and recall strategies are likely most effective when serving as a prompt for those who have already decided to accept vaccination rather than as a mechanism to impact initial acceptance. The authors emphasize that their negative results cannot be explained by hesitancy alone given that the intervention had no impact on either initiation or series completion. Although this is true, hesitancy may still be a contributing factor. Notably, vaccine initiation and completion rates were higher for younger compared with older adolescents. Older adolescents, who made up one-third of the study population, might have been a more hesitant or complacent group because they had not initiated or completed the series by 15 years of age.

Multilevel interventions may also be important for the HPV vaccine. A study in Philadelphia revealed that educational reminders to parents improved receipt of subsequent doses but not initiation of the HPV vaccine series, whereas a clinician-focused intervention impacted initiation but was less effective for series completion. The combined intervention revealed the greatest overall impact.⁸ This study highlights the differential pathways that drive series initiation and completion. Prompting a physician recommendation worked because

provider recommendation is a key driver of initial vaccine acceptance, and a family-focused intervention served to remind parents of the need for subsequent doses after initial acceptance. These results are in keeping with other studies revealing the success of multicomponent approaches.⁴

HPV vaccines have the potential to eradicate cervical cancer as a public health problem.⁹ HPV immunization rates in the United States continue to be low, and understanding which interventions can optimize coverage is important. Although centralized autodialing may have been successful for childhood vaccination programs and some adolescent vaccines, this study suggests that it may not be the best choice for improving HPV vaccine coverage when used alone. Other communication modalities, such as text messaging, may be more effective given their increasingly widespread use and acceptability. Per current literature, successful interventions have also used both practice-based and multicomponent approaches, targeting providers and parents and including both reminders and educational messages. Unfortunately, such approaches are more complex and may be expensive to deliver, limiting their generalizability. As such, centralized reminder and recall systems may have a complementary role to play in improving coverage. Identifying the optimal method of message delivery will be important to optimize impact and guide resource allocation in this area.

ABBREVIATION

HPV: human papillomavirus

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