Pragmatic Trial Evaluation of Multilevel Interventions to Increase Human Papillomavirus (HPV) Vaccination Rates

Evaluation of Patient- and Clinician-Facing Evidence-Based Implementation Strategies to Increase Human Papillomavirus (HPV) Vaccination Rates: A Progress Report

INTRODUCTION

HPV Vaccination

Uptake of the human papillomavirus (HPV) in the United States (US) is lower than other recommended vaccines due at age 11-12 years.

While nearly 90% of US teens aged 13-17 years have received the tetanus-diphtheria-acellular pertussis vaccine and the first dose of meningococcal conjugate vaccine, only 54% have completed the 2-or-3 dose HPV vaccine series.

Provider Recommendations

Healthcare providers are the most trusted and influential source for vaccination recommendations; however, US teens aged 11-17 infrequently have health visits—preventive or otherwise.

A significant number of parents who have not vaccinated their teens against HPV report failing to receive a provider-recommendation for the HPV vaccine.

Need for Interventions

To address parent, provider, and system-level barriers to HPV vaccination, multilevel interventional approaches are needed.

SPECIFIC AIMS

Herein we describe an ongoing cluster randomized trial with factorial design to evaluate the impact of patient- and clinician-facing interventions implemented at the system level to increase HPV vaccination rates.

Aim 1: Assess the impact of reminder-recall communications delivered to parents on HPV vaccine uptake among 11-12 year-old patients

Aim 2: Assess the impact of audit-feedback reports delivered to providers on HPV vaccine uptake among 11-12 year-old patients

Aim 3: Assess the impact of both interventions simultaneously on HPV vaccine uptake among 11-12 year-old patients

METHODS

Setting and Population

Six practices in Southeast Minnesota staffed by family physicians, pediatricians, and nurse-practitioners who provide care to children ages 11-12 years.

Design

The stepped wedge, factorial design used in our study is summarized in Figure 1.

During Step 1 we conducted focus groups of parents and providers to guide refinement of planned interventions.

At each subsequent step, sites are randomized to the interventions following a factorial design; we are currently in Step 3 and will initiate Step 4 in Sept. 2021.

Process Evaluation

We are conducting surveys of parents and clinicians to ascertain potential mechanisms of impact.

- *Parent Survey:* evaluation of awareness of and response to the reminder-recall intervention and assess attitudes and beliefs about HPV vaccination.
- *Clinician Survey:* evaluation of exposure to and experience with the audit and feedback reports and the strong-recommendation tool kit (presumptive language, CASE approach) and assessment of provider knowledge and attitudes related to HPV vaccination.

RESULTS

The primary outcome for our trial is receipt of HPV vaccine among eligible patients. Process measures will be used to conduct secondary analyses of the interventions' impact on the outcomes of interest.

DISCUSSION

Upon completion, we will have evidence of the effectiveness of each intervention alone and together.

Through our process evaluation, we will assess implementation fidelity and evaluate contextual factors

Figure 1: Factorial Design Utilized by the Stepped-Wedge, Cluster-Randomized Trial

Practice	Step 1	Step 2	Step 3	Step 4
A	0	0	1	1&2
B	0	1	1&2	1&2
C	0	2	2	1&2
D	0	0	2	1&2
E	0	1	1	1&2
F	0	2	1&2	1&2

0 = No intervention, current practice
1 = Reminder-recall letter to parents
2 = Audit-feedback to providers
1&2 = Both interventions

Features of Revised Parent Reminder-Recall Identified through Focus Groups

- Reminders sent by postal service (vs. phone, text, or portal)
- Reminders list all vaccines due, not just the HPV vaccine
- Reminders do not emphasize HPV vaccine especially
- Reminders provide sources for obtaining more information

Features of Revised Audit-and-Feedback Identified through Focus Groups with Providers

- Uses confidential intra-campus paper mailer
- Reports the rates of patients due who were recently seen and not vaccinated
- Provides link to online toolkit
  - Teaches presumptive language to signal strong recommendation
  - Teaches CASE approach to address vaccine hesitancy
  - Provides scripts to handle common objections to HPV vaccine

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