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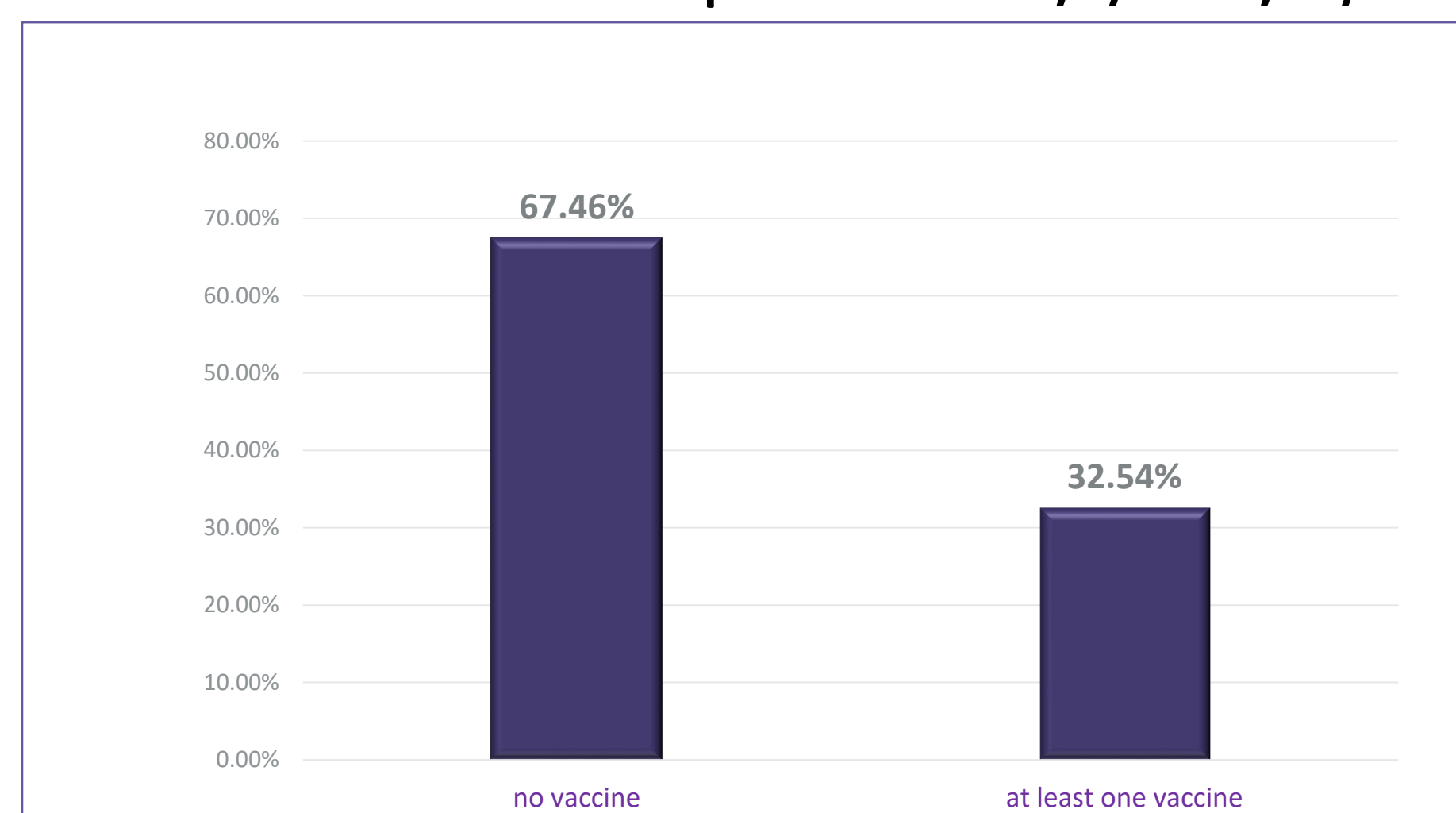
Successfully increased first dose HPV vaccination completion rate from 32.5% to 65% within designated Primary Care Practices. This was accomplished using a multimodal approach. Improvements in HPV immunization rates will lead to a decrease in future HPV related cancers.

BACKGROUND

Introduction:

- Nearly 80 million Americans are infected with the Human Papillomavirus (HPV).
- HPV is thought to be responsible for more than 90% of anal and cervical cancers, 70% of oropharyngeal cancers, 70% of vaginal and vulvar cancers and 60% of penile cancers.
- HPV vaccination provides safe, effective and lasting protection against the HPV infections that most commonly cause HPV-related cancers.
- The CDC's Advisory Committee on Immunization Practices (ACIP) recommends routine vaccination at age 11 or 12.
- HPV vaccination has decreased uptake due to parents' perception and lack of education provided about the vaccine^{2,3} as follows:
 - Not needed as child is not sexually active
 - Perceive 11-12 years old is "too early for vaccination"
 - Need additional education by provider before agreeing to vaccination
- Our scope was boys and girls ages 11 and 12 who were seen for a well child visit with a Northwestern Medicine Regional Medical Group (RMG) Primary Care Physician documented in EPIC during the measurement period.
- At baseline, 32.5% of RMG 11-12 year olds seen for a well child visit received the HPV vaccine (Figure #1).
- Our immediate goal was to increase HPV vaccination amongst the 11 and 12 year olds seen for a well child visit from 32.5% to 40% by 2/18/19.
- Our long range goal is an increase in HPV vaccination up to 64%, which aligns with national benchmarks.

Figure # 1: Baseline Metric – N=169
Children aged 11-12 with a well child visit and evidence of at least one HPV vaccine. RMG patients seen 9/1/17 - 2/28/18

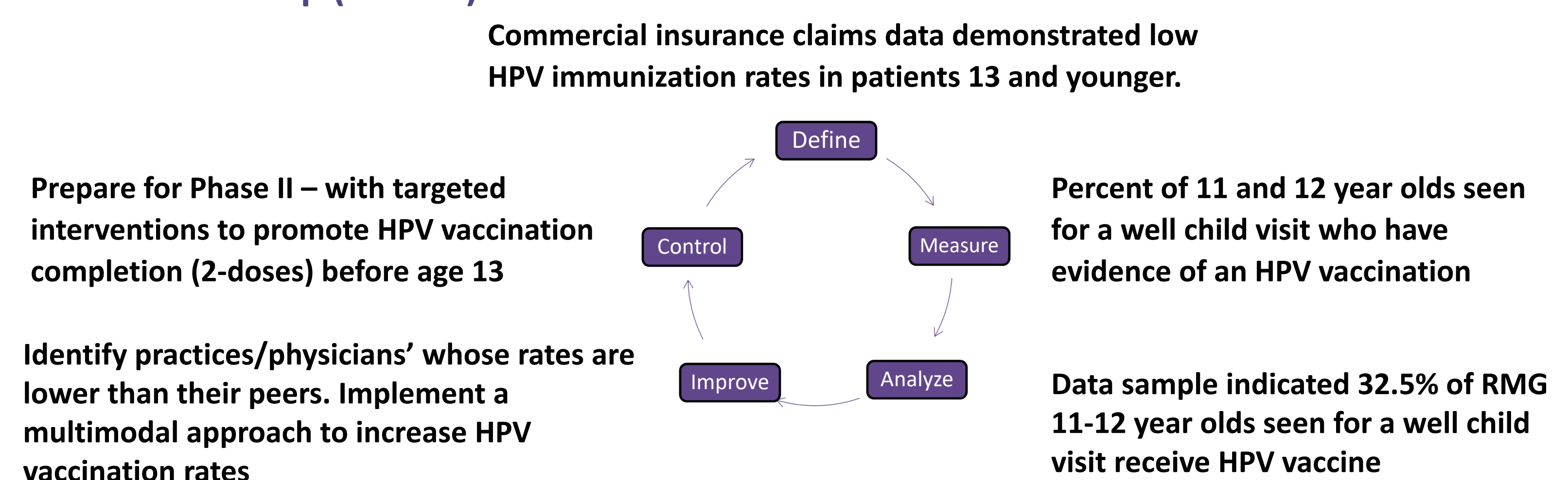


METHODS

Project Approach:

- The HPV Cancer Free team approached the project using DMAIC methodology (Figure #2).

Figure #2 Process Map (DMAIC)



- A review of commercial insurance claims data revealed low HPV immunization rates in patients 13 and younger.
- Reviewing literature studies identified beliefs and reasons for low HPV vaccination.
 - Education and a strong provider recommendation have proven to increase vaccination rates⁴.
- Evaluated the effect of a multi-modal approach to improve HPV immunization rates.
 - Measured provider individual immunization rates and compared to national benchmarks.
 - Individual rates were shared with providers to increase accountability, and track best practices.
 - Conducted an anonymous survey of select Family Medicine, Med/Peds and Pediatricians to determine perception of vaccine and reasons HPV uptake was not at benchmark levels.

Figure #3: Survey Results

- 98% felt that public perception of the HPV vaccine was a barrier to immunization
- 93% of respondents were interested in knowing their personal rates
- 85% felt that parental concern about the safety was a barrier
- 78% felt that they strongly recommended the vaccine for 11-12 years old, which means that 22% are not
- 53% would welcome further education for their staff
- 45% believe that parents of 11/12 year olds may be upset at offering the vaccine at this age (research shows this is not the case)
- 38% felt that sexuality would need to be addressed with discussing the vaccine (it does not)
- 20% felt that it was more important for females to receive the vaccine than males
- 18% were concerned with the time involved in discussing this vaccine
- 8% of providers are not convinced of the safety of the vaccine themselves

- Physician survey results confirmed literature findings; public perception was largest barrier to uptake of HPV immunization (Figure #3).
- HPV Cancer Free Team focused on education and materials proven to increase vaccination rates.
- Parent focused clings were distributed to our designated practices to be placed in each exam room.
- Clinic and physician staff education was provided discussing HPV cancers
- A role-playing video was created using a NM Pediatrician demonstrating common questions and interaction simulations.
- Providers and staff taught how to discuss vaccination according to the CDC's presumptive bundled approach, where HPV vaccination is recommended in the same way on the same day as other adolescent vaccines. Studies show that presumptive statements improve vaccination uptake.
- EPIC enhancement – SmartSet BPA checkbox defaulted to "on" for HPV vaccination.
- Social media outlets utilized to promote HPV Awareness – NM Facebook; NM Twitter; WGN Radio.

RESULTS

Impact: As of June 2020, our interventions resulted in an increase in HPV immunization rates from 32.5% to **65%** (Figure #4). There are notable variations in HPV rates by medical specialty (Figure #5). We are using this information to assist in tailoring our future interventions to meet our long range goal for all specialties.

Figure #4:

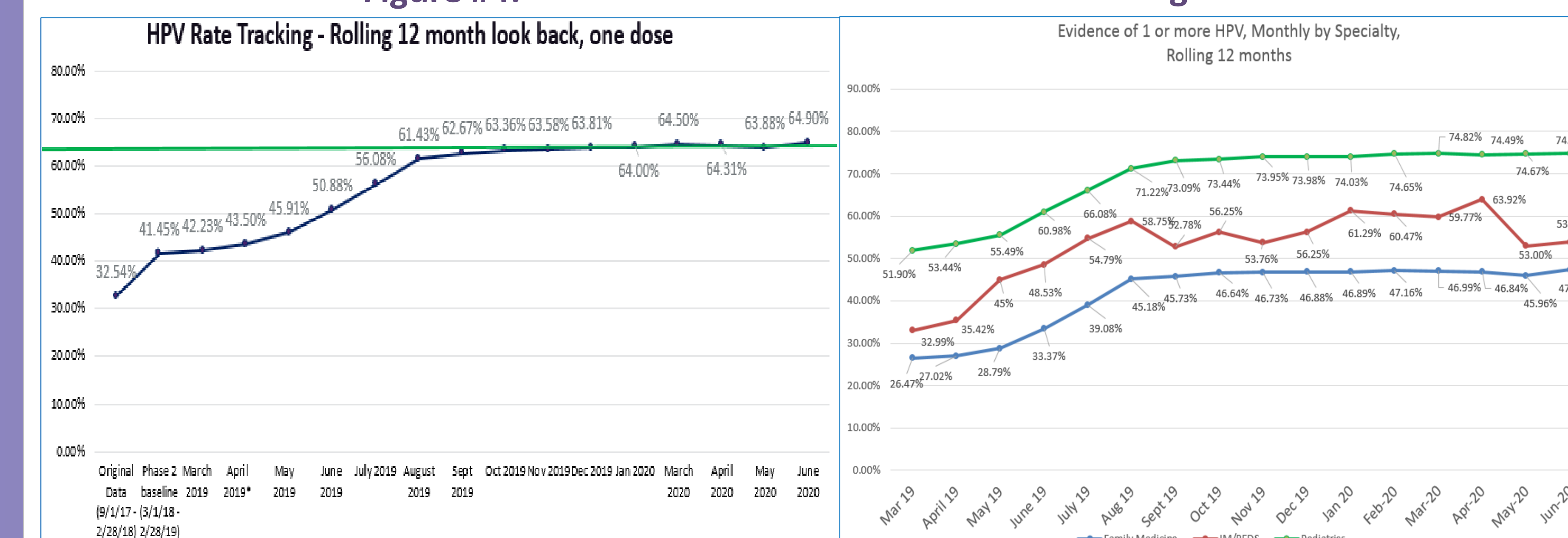
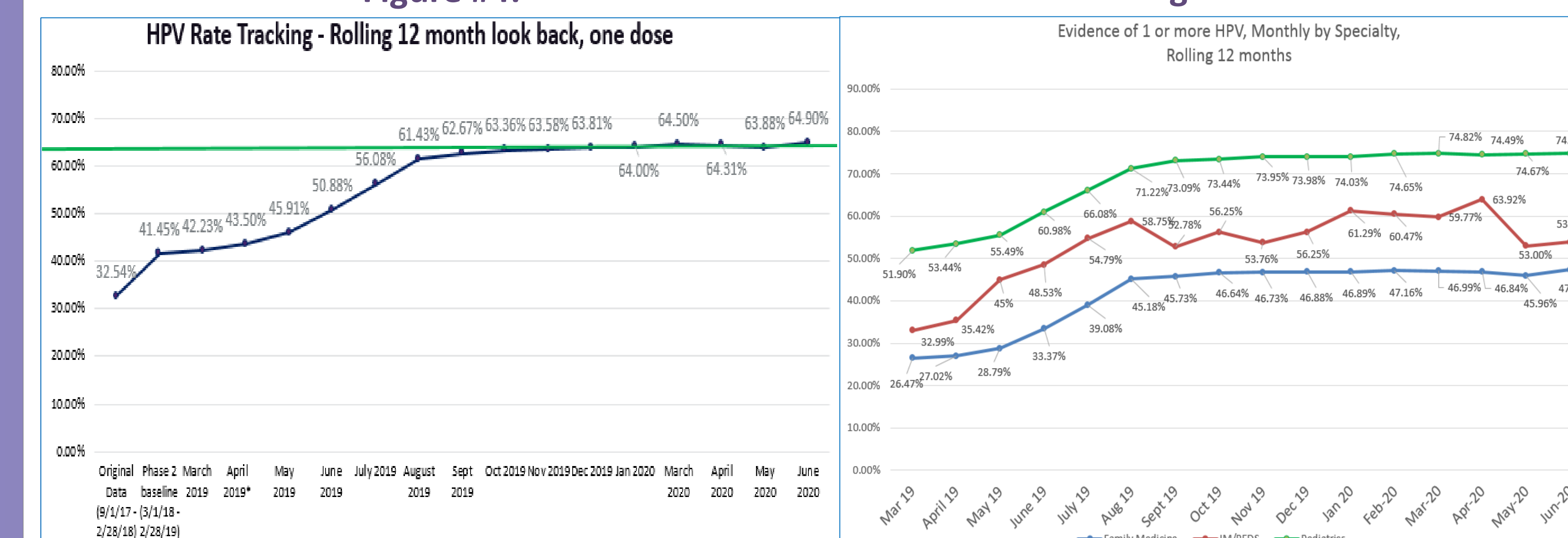


Figure #5:



Control Plan:

- Continue monthly team meetings to evaluate and address practices/areas needing support.
- Provide physicians with individualized monthly un-blinded HPV immunization rates.
- Quarterly participation in Northwestern Medicine Central DuPage Hospital Family Advisory Council.
- Facilitate ongoing educational opportunities for providers and office staff to promote best practices.
- Expand team membership to additional medical specialties (General Medicine, OB-GYN).

Table #1 – Enduring and Future Interventions

Intervention	Frequency	Target Audience
HPV Cancer Free! Team meetings	Monthly, will adjust frequency as needed	n/a
Post-project survey to identify which interventions impacted results	Once	FP, Peds, Med/Peds offices
Identify parent focused educational materials and provide to offices for support	Ongoing	FP, Peds, Med/Peds offices
Provide physicians with their results	Monthly; un-blinded results	FP, Peds, Med/Peds Physicians, AHP
Family Medicine Physician joined team	March 2019	Patients
Pediatric Physician Champions (Pilot) : Educating Staff	Ongoing	Office Staff
Parent focused education		
Choosing Wisely Video: HPV Vaccine: It's Safe and Effective	March, 2019 – August 2019	Physicians, AHP
Family Advisory Council	Quarterly	Parents
Physician CME: HPV related Cancers	Once, March 27, 2019	Physicians
Extend project to include measuring adolescents who receive 2 doses by age 13	TBD	Physicians, Office Staff, Parents

CONCLUSIONS

Critical success factors: Multi-disciplinary team membership; actively engaging physicians and offices with education and validated best practices to improve HPV vaccination (clings, presumptive bundled recommendation and sharing individual physician immunization data). Accountability facilitated by providing physicians with individualized monthly un-blinded HPV immunization rates.

Next Steps: Multimodal approach to targeting interventions and communication to providers, parents and clinicians (attending meetings, utilizing social media, providing opportunities for education/CME). Table #1 illustrates enduring and upcoming interventions.

Future evolution of our project: Focus on ensuring patients complete vaccination series (2-doses) by age 13.

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No conflicts of interest to disclose.