



RIZE Pneumococcal Vaccination
Best Practices Learning Collaborative

Increasing Vaccination Rates in Vulnerable Populations Age 19–64

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Increasing Vaccination Rates in Vulnerable Populations Age 19–64

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Streptococcus pneumoniae (pneumococcus) bacteria cause infections ranging from mild ear and sinus issues to much more serious, and potentially deadly, conditions. Pneumonia, an infection of the lungs, kills 1 in 20 older adults who contract it. Both bacteremia, an infection of the bloodstream, and meningitis, which infects the lining of the brain and spinal cord, kill 1 in 6 older adults with these conditions.¹

A number of antipneumococcal vaccines have been developed and studied since the 1970s,² with three pneumococcal conjugate vaccines (PCV15, PCV20, and PVC21) and one pneumococcal polysaccharide vaccine (PPSV23) recommended for adults.³

The Centers for Disease Control and Prevention (CDC) recommends pneumococcal vaccination for all adults 65 years or older⁴ and for younger adults (ages 19 through 64 years) with certain chronic and immunocompromising conditions, including alcoholism, cigarette smoking, diabetes, and chronic heart, kidney, liver, and lung disease.⁵ Other vulnerable groups include people with malignancies such as leukemia or lymphoma, with cochlear implants, or with solid organ transplants, and people in group living situations, such as skilled nursing facilities and jails, or those experiencing homelessness.⁶

Despite the recommendation, many younger patients in high-risk populations are not getting immunized. A 2020 Healthy People objective from the Office of Disease Prevention and Health Promotion illustrates the gap. While the objective's aim is to get 60% of high-risk people aged 18–64 vaccinated against pneumococcal disease, the baseline rate is just 16.6%.⁷

Provider education may play a role. The *Journal of the American Board of Family Medicine* reports, “A disconnect seems to exist between perceived clarity and knowledge of the recommendations,” and that “optimal implementation of these recommendations will require addressing knowledge gaps and reported barriers.”⁸

Health equity is also a concern in pneumococcal prevalence and vaccination. African American, American Indian, and Alaska Native patients carry a higher disease burden related to pneumococcus,⁹ and a 2022 study of pneumonia vaccination rates in individuals 65+ revealed only 62% of Black, 58.3% of Hispanic, and 62% of American Indian/Alaskan Native patients to be vaccinated, compared to 71.3% of patients overall.¹⁰

Collaborative Overview

The RIZE Pneumococcal Vaccination Best Practices Learning Collaborative aimed to improve pneumococcal vaccination rates for adults aged 19–64 with underlying medical conditions or other risk factors, based on 2022 Advisory Committee on Immunization Practices (ACIP) guidelines: use of PCV20 or PCV followed by a dose of PPSV23 about one year later.¹¹

AMGA Foundation launched the RIZE Pneumococcal Best Practices Learning Collaborative in late 2022 in partnership with Pfizer. AMGA Foundation Collaboratives use education, goal-setting, peer-to-peer learning, and the sharing of best practices to help healthcare organizations develop strategies and implement evidence-based interventions for chronic conditions, preventable illnesses, and organizational performance.

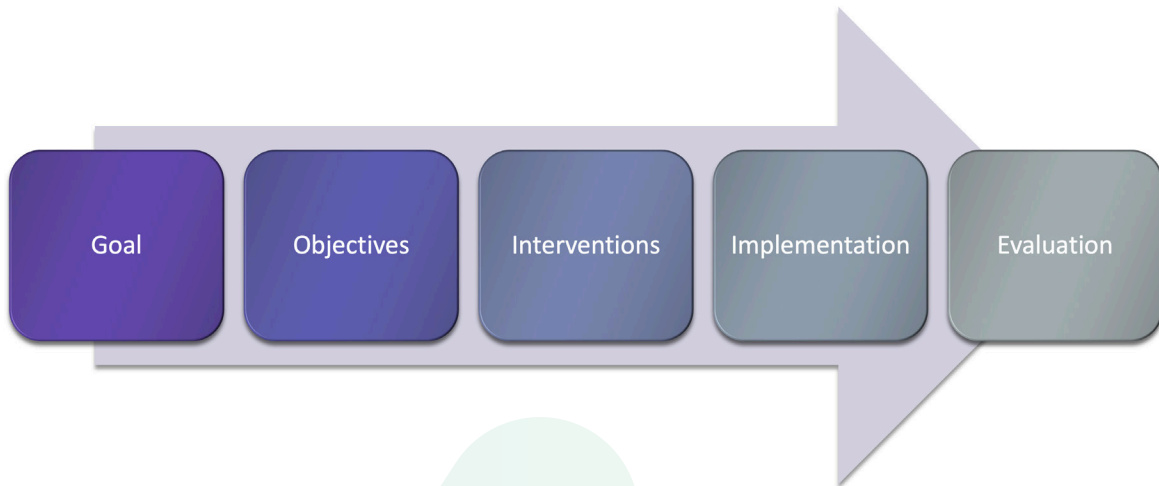
The RIZE Pneumococcal Best Practices Learning Collaborative engaged eight participating healthcare organizations that are participants in the Rise to Immunize Campaign (listed on page 4) to:

- Identify and address gaps in vaccination rates for patients aged 19–64, with a focus on at least one underserved or vulnerable population
- Improve adherence to immunization guidelines
- Improve patient-centric access to care strategies

The Collaborative as a whole also focused on evaluating the program's impact on relevant vaccination rates over time, ensuring reporting to immunization registries, and identifying gaps in the capture of vaccination data, with a focus on improving the accuracy and completeness of vaccination documentation.

Participant organizations developed goals, selected objectives and interventions, and implemented their activities during the 12 months of the Collaborative and continued evaluation. Interventions encompassed areas such as education, outreach, access, clinical decision support tools, and reporting.

Quality Improvement Process



Quality Improvement Measures

Quality improvement measures are a critical part of AMGA Collaboratives for monitoring progress within and across organizations. Data are shared as part of a feedback loop to determine whether interventions are working and compared across organizations as a learning opportunity to understand the impact of different processes and workflows.

Measures for the RIZE Pneumococcal Best Practices Learning Collaborative were developed by the Rise to Immunize® (RIZE) National Advisory Committee and are based on the HEDIS® Adult Immunization Status (AIS-E) measure.

Participants reported each measure quarterly for a rolling 15-month measurement period. Data sources included medical and pharmacy claims and records, (electronic) practice management systems (PMs or EPMS), electronic health record systems (EHRs), disease registries, population health software, local/state/regional vaccine registries, and other health records. These data could have been recorded or collected directly at the point-of-care, or they could have originated and been transmitted from another data source. No patient-level data were reported or submitted.¹²

The Excel reporting template provided a cumulative record of a participant's reported measures data so they could evaluate the consistency of their data from quarter to quarter and track progress. After each submission deadline, AMGA provided comparative benchmarking reports across all participating organizations.

The RIZE Pneumococcal Best Practices Learning Collaborative is part of the award-winning [Rise to Immunize® \(RIZE\) campaign](#), which aims to administer 30 million vaccines by 2027 through comprehensive, equitable vaccine initiatives for four routine adult immunizations (influenza, pneumococcal, Td/Tdap, and zoster).

Primary measure: Organizations recorded pneumococcal conjugate vaccination (PCV) rates among the target demographic of this Collaborative: patients aged 19–64 who have certain underlying conditions or risk factors.

Health equity measure: Organizations choose one target population with lower pneumococcal vaccination rates within their organization by which to stratify their measure data and on which to focus certain interventions.

Reference measure: Organizations choose one reference population by which to stratify their measure data for comparison with the target population.

Table 1: Participating Organizations

Organization	Health Equity Focus
Houston Methodist <i>Houston, TX</i>	Female patients
Kelsey-Seybold Clinic <i>Houston, TX</i>	Hispanic patients
McFarland Clinic <i>Iowa</i>	Rural/small town
Norton Medical Group <i>Louisville, KY</i>	Latino patients
Olmsted Medical Center <i>Rochester, MN</i>	Patients with substance use disorder, with a secondary focus on English as a second language patients (Arabic, Somali, Spanish)
Sharp Rees-Stealy Medical Group <i>San Diego, CA</i>	Female patients
St. Elizabeth Physicians <i>Northern Kentucky, Southwest Ohio, Southeast Indiana</i>	Hispanic patients
Palo Alto Medical Foundation (Part of Sutter Health) <i>California (Alameda, San Mateo, Santa Clara and Santa Cruz counties)</i>	Patients age 19–50

Underlying Conditions and Risk Factors

Underlying conditions and risk factors for the RIZE Pneumococcal Best Practices Learning Collaborative include:

- Alcoholism
- Cerebrospinal fluid leak
- Chronic heart, liver, lung, and renal disease
- Cigarette smoking
- Cochlear implant
- Congenital or acquired asplenia (absence of a spleen)
- Congenital or acquired immunodeficiency
- Diabetes mellitus
- Generalized malignancy
- HIV infection
- Hodgkin’s disease
- Iatrogenic immunosuppression
- Leukemia/lymphoma
- Multiple myeloma
- Nephroic syndrome
- Sickle cell disease
- Solid organ transplant

Schedule of Activities

December 2022–March 2023

Onboarding and orientation; baseline data and QI reports submitted

January 2023–April 2024

Implementation: First virtual meeting; Monthly webinars; Virtual site visits; Data/QI submissions; Second virtual meeting

May–September 2024

Final analysis, synthesis, publication

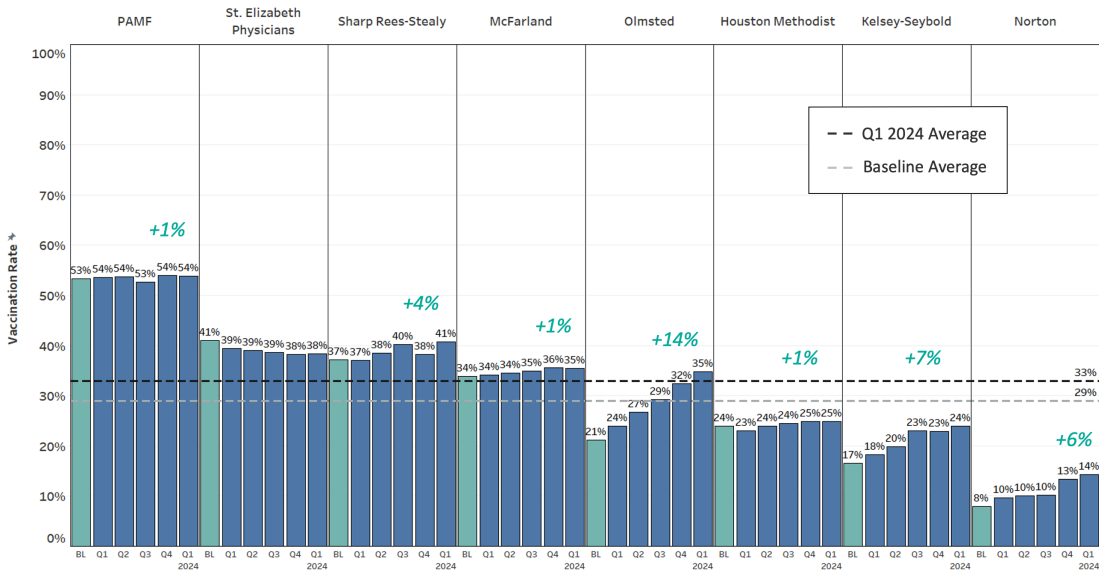
Results

Participating organizations administered 44,852 pneumococcal vaccines during the Collaborative, with 14,138 to the selected vulnerable populations. If rates had stayed the same as at baseline, approximately 4,352 fewer patients overall and 838 fewer patients from vulnerable populations would have received vaccinations, indicating that the implemented interventions made a difference.

For the primary measure (vaccination rates for all patients aged 19–64), most groups noted improvements, and increases were reported of up to 14%.

Primary Measure Improvement

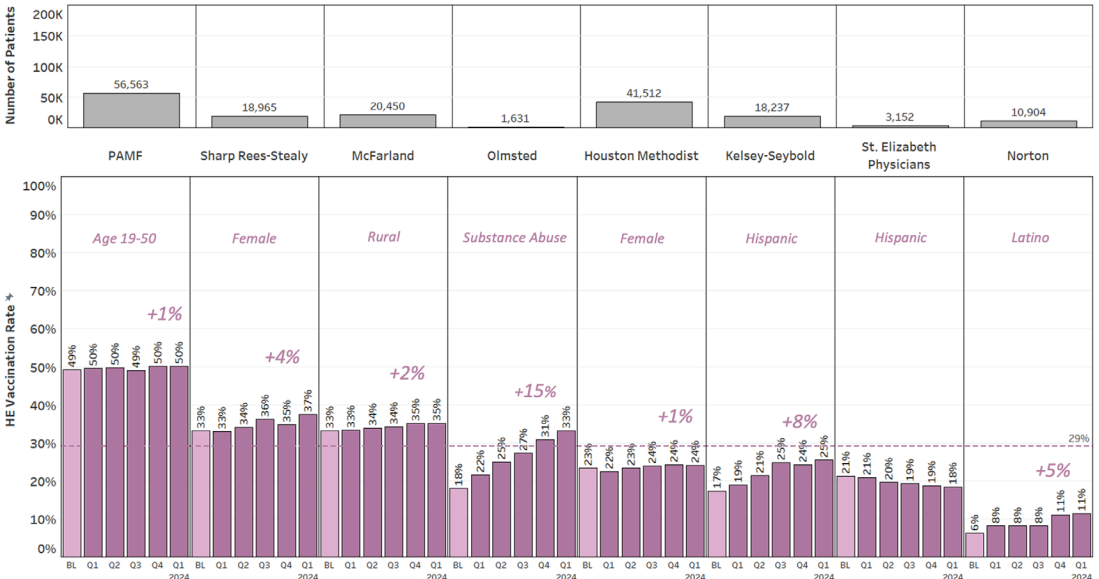
Change in vaccination rates from baseline to Q1 2024 ranged from -3% to 14%. Overall, the Collaborative average has improved 4% since baseline.



Similar results were seen for the health equity measure, with increases reported of up to 15%.

Health Equity Population Measure

Change in vaccination rates from baseline to Q1 2024 ranged from -3% to 15%. Overall, the Collaborative average has improved 4% since baseline.



Many organizations saw improved vaccine participation in both their health equity populations and their full populations. Organizations anecdotally noted increased provider and staff awareness of pneumococcal vaccination and its benefits, and many shared that they plan to continue—and sometimes even expand—their interventions.

About the Interventions

The Collaborative's eight participating organizations represented a wide range of structures, geographies, patient populations, insurance products, and more, resulting in a rich array of intervention tactics.

Blending high tech with high touch, one rural physician-owned multispecialty clinic used technology to bring care gaps to the surface, send bulk messages to patients, and remind employees of initiatives like immunization month, then in-person presentations to educate department managers and medical directors about the vaccination and its importance.

Another participating group, a nonprofit network of physicians, used data analysis and technological tools to optimize its resources across a sprawling coverage area. Its intervention: bulk messaging to inform patients about where to obtain the vaccine and when, targeted toward a smaller cohort of younger patients with diabetes.

Provider education was a priority for many participants. Why is pneumococcal vaccination so important, and what are the latest guidelines? What criteria make a patient high-risk, and what barriers stand in the way of vaccine adoption?

Organizations varied in how they helped their providers answer questions like these—and who delivered the message. One large multispecialty clinic in a major city brought in the managing physician for immunization practices to provider meetings to deliver pneumococcal-focused education. At another organization, regional primary care medical directors shared information with colleagues.

Efforts to educate providers and immunization teams overall pay off, according to participants. A strong provider recommendation will lead to an increase in vaccination rates, one group noted. Another pointed out the value of comprehensive work instructions, especially for manual processes.

Data played a key role throughout Collaborative interventions, from making care gap information visible in the EHR during a patient visit to distributing monthly reports to providers on their progress. One multistate organization used data analysis to determine the needs of its rural and urban communities, so it could target vaccine education and outreach accordingly.

Technology played a role across interventions: for distributing alerts and education to patients, sharing patient lists with providers, showing coverage area “heat maps” to leaders, and beyond. Many interventions leveraged existing systems, such as MyChart for patient outreach and Epic best practice alerts to help providers identify eligible patients during office visits. One organization serving a rural population noted a pleasant surprise: Internet access is improving.

High-Performance Spotlights

The highest-performing interventions varied across geographies, patient populations, and group structures. What they shared in common was an understanding patient barriers and needs, equipping providers and care teams with knowledge and support, gaining buy-in, and leveraging technology throughout the process (despite the challenges).



Through EHR-enabled patient outreach supported by provider education, the organization reported a 7% improvement in its primary measure (vaccination rates overall) and an 8% improvement in its health equity measure (Hispanic patients).

Kelsey-Seybold used its MyKelseyOnline portal in Epic to send out messages that explained the vaccine and the importance of immunization. Messages were in English or Spanish, based on language preferences set by the patient.

To educate providers about the outreach campaign, Kelsey-Seybold incorporated discussion of the pneumococcal vaccine into monthly meetings. During these sessions, the organization's managing physician of immunization practices addressed concerns and answered provider questions.

Following the initial round of messaging, Kelsey-Seybold saw vaccination rates increase among both Hispanic patients and the full group. Rapid growth necessitated a second round of outreach in January 2024. Once again using the MyKelsey Online portal, Kelsey-Seybold sent messages to new patients and those who had not yet been vaccinated since the previous outreach. Messages talked about the vaccine and the importance of immunization in the patient's language choice of English or Spanish.

IT issues presented one challenge: Implementation of the campaign's initial messaging by the organization's end-of-March deadline required working around an Epic upgrade and other competing priorities.



Through patient identification and notification, the organization reported a 6% improvement in its primary measure (vaccination rates overall) and a 5% improvement in its health equity measure (Latino patients).

Norton Medical Group (NMG) first sought to understand the obstacles preventing its Spanish-speaking patients from accessing the vaccine.

The bilingual NMG La Clinica practice provided feedback, stating that many patients, especially those who were refugees or immigrants, only received the shots required for U.S. citizenship and did not understand the value of this specific vaccination. Cost was a consideration for many, and patients who did not have insurance often declined vaccination when informed they had to self-pay.

Meanwhile, staff did not have the tools or information for vaccine education and did not feel supported. Awareness was lagging among care teams about low vaccination rates for this population.

NMG leveraged the Epic Health Maintenance High Risk Pneumococcal build to create a tool for identifying eligible patients. During huddles, providers received education on using this tool and identifying high-risk, vaccine-eligible patients. Providers also received lists of patients eligible for the vaccine, so they could discuss immunization during patient visits.

Looking ahead, NMG is working to expand its outreach to eligible patients, standardize vaccine care across its specialty clinics, use health maintenance data to guide future strategy, and secure the appropriate regulatory status to make two of its clinics eligible to provide vaccinations to uninsured patients at no cost.



Through highly targeted outreach that evolved throughout the Collaborative, the organization reported a 14% improvement in its primary measure (vaccination rates overall) and a 15% improvement in its health equity measure (substance abuse).

In its initial intervention, Olmsted Medical Center supplied its Medication Assisted Treatment (MAT) clinic—a specialized facility for substance use disorders—with the pneumococcal vaccine to offer during patient appointments. The Collaborative team also worked with primary care providers to ensure that unvaccinated patients with substance use disorder were referred to the MAT clinic.

When Olmsted realized it wasn't vaccinating as many MAT patients as it would have liked, the organization decided to add another set of parameters to this targeted intervention: patients who indicate Arabic, Somali, or Spanish as their language of choice.

Lessons learned: When conducting multilingual outreach, confirm that translation services use native language preferences.

Lessons learned: Equip providers with data on current vaccine rates and missed opportunities. Offer patients the ability to schedule vaccination appointments directly via text message.

Olmsted sent letters to patients in their preferred language and addressed population-specific concerns throughout patient interactions. Communications with one group, for example, highlighted that the pneumococcal vaccine does not contain gelatin, which is forbidden by some religions and cultures. Clinic teams also discovered that some patients with a history of IV drug use saw needles as a trigger and were resisting vaccination for that reason.

The team cited many challenges along the way, including provider buy-in (especially in specialty departments), patient buy-in, staff awareness and understanding (especially of eligibility requirements for various vaccine formulations), and access.

To tackle these challenges and build upon progress, Olmsted is working to equip its endocrinology and cardiology departments with vaccines and educating these providers about the importance of vaccination, especially if uptake is lagging. The organization is also exploring additional channels, such as community partnerships, to expand vaccine access.

Sharp Rees-Stealy Medical Group

Through pre-visit outreach, the organization reported a 4% improvement in its primary measure (vaccination rates overall) and a 4% improvement in its health equity measure (female patients).

Sharp Rees-Stealy Medical Group leveraged a variety of resources, from clinical rounds to its population health team, in its multifaceted intervention to get more at-risk women vaccinated.

The first step: running monthly lists of qualifying women with upcoming appointments and performing pre-visit outreach to offer vaccinations and answer patient questions.

The organization distributed a frequently asked questions document and list of high-risk criteria and conducted educational presentations at multiple clinic sites. Population health clinic staff also received education on vaccine administration.

To streamline vaccine scheduling, Sharp Rees-Stealy used its text messaging system to send out a templated message to eligible patients recommending the vaccine. Patients who responded to the message were added to a queue.

The organization celebrated success through a staff luncheon, shout-outs in team huddles, and highlighting accomplishments in meetings and its newsletter.

Additional Insights

Health Equity

Throughout the Collaborative, identifying vulnerable populations presented a challenge, but by using data, participants were able to understand more about the populations they served and where to focus their vaccination efforts.

One organization, for example, discovered during data exploration that immunization gaps between rural patients and the overall population were not as large as expected. Another group had chosen African American patients as their vulnerable population, but quickly realized that there was not a disparity when looking at the rates compared to their White population. The organization then shifted its focus from race to gender, where a significant disparity in rates was observed and their health equity efforts could have greater impact.

Lessons learned: When communicating with patients, tailor messages and use preferred languages. When communicating with providers, be redundant and relevant—explain why this vaccine is so important.

Lessons learned: Get support from senior leadership. Take as much work as possible off physicians' and clinics' plates. Throughout, communicate, communicate, and communicate.

Challenges

A variety of obstacles prevented organizations from working as quickly or as comprehensively as they would have liked, from staffing to cyberattacks.

Participants noted vacancies at the executive level, including the Chief Medical Officer and Population Health Officer. One organization was undergoing an overall upgrade to its Epic system. For another, malicious ransomware limited EMR usage, data, and emails for months.

Organizations wanting to implement new technology capabilities and tools often reported IT departments with extensive development backlogs, competing priorities, and the cumbersome builds new features often require.

Legacy systems and infrastructure presented their own obstacles. Pneumococcal vaccination history is often not readily identifiable in the EHR, for example. Another organization realized much of the readily accessible data on pneumococcal immunization to be Accountable Care Organization-driven, and therefore for patients 65 years and older.

As in many aspects of healthcare, time constraints were a challenge. For providers, how do you bring pneumococcal vaccination to the surface among the many priorities of a primary care appointment? For patients, it's a matter of working vaccination into work and family obligations, particularly when it can be difficult to identify locations that provide the vaccine and get a primary care appointment. In rural areas, patients do not always have access to transportation, and inclement weather can be a barrier as well.

In immunization initiatives today, access and adoption are multifaceted, from insurance coverage to “vaccine fatigue” and beyond, and every organization must work to understand their patient population.

Tips, Takeaways, and Sustaining Progress

What else do Collaborative participants recommend for getting an adult pneumococcal vaccination program off the ground today, and sustaining efforts into the future?

Leverage tools that are ready to go now. One organization encouraged its providers to use the CDC's Pneumorecs app to help determine who should receive the vaccine, then reconcile immunizations with their state's database as part of standard rooming procedures.

Maximize time and resources. Some examples include leveraging nurse-only appointments (or having nurses order immunizations during rooming), promoting immunizations to eligible patients during family member visits, and encouraging patients to get multiple vaccinations at the same time.

“Think outside of the box” for accessibility: Can immunization clinics improve access? Are there volunteers who can assist with transportation? Can other venues, such as flu clinics, offer the pneumococcal vaccine?

With an initiative as multifaceted as adult pneumococcal vaccination, a 12-month intervention is just the beginning. How do you keep the momentum going?

Patience and persistence are key as well. Changing workflows in an organization must occur slowly and over a long period of time, one participant noted. Processes take longer than they used to, another declared.

Finally, keep in touch with providers and staff about challenges and barriers—especially those that are unforeseen—and get support from clinical and departmental leaders early and often.

For one organization, the success of a bulk messaging campaign depended on having rooms and clinics available for administering the vaccines after the messages go out.

Another organization aimed to address gaps in care with a technology fix that would enable physicians to order vaccinations directly from the EHR. But they first needed to know the specific conditions and patients to target, which required early stakeholder buy-in.

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About Rise to Immunize®

Rise to Immunize® is AMGA Foundation's third national campaign and aims to empower medical groups and health systems to collectively administer 30 million vaccines by 2027 through comprehensive and equitable vaccine initiatives. This six-year initiative focuses on increasing rates of seven critical immunizations—influenza, pneumococcal, Td/Tdap, zoster, RSV, COVID-19, and hepatitis B—among adults to decrease vaccine-preventable disease and death. Learn more at www.risetoimmunize.org.

About AMGA Foundation

AMGA Foundation is AMGA's philanthropic arm that enables medical groups and other organized systems of care to consistently improve health and healthcare. AMGA Foundation serves as a catalyst, connector, and collaborator for translating the evidence of what works best in improving health and healthcare in everyday practice. Learn more at www.amga.org/foundation.

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**For more information on the RIZE Pneumococcal Vaccination
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