

Title: Orange County Immunization Improvement Project (OCIIP)

Collaborators: American Academy of Pediatrics – Orange County Chapter
Orange County Immunization Coalition

Project Timeline: January 1, 2019 – March 31, 2020

Abstract: The American Academy of Pediatrics – Orange County Chapter (AAPOC) will implement the Orange County Immunization Improvement Project (OCIIP) to employ quality improvement techniques and clinical education/training to increase immunization rates in OC clinical practices, using the Model for Improvement. The primary goal will be to increase rates of the CIS Combo 10 immunizations before age 2. The OCIIP will expand successful interventions tested during our participation in the AAP-CQN Phase 1 project, where practices adopted sustainable changes in routine care and office processes to improve childhood immunization rates. Promising interventions include: implementing recall systems; vaccinating at acute visits; reviewing vaccination status at all visits; and integrating registry use into daily workflow.

OCIIP will recruit 15-20 practices, focusing on those connected to large health systems, to affect change among a large OC population. AAPOC will lead efforts to recruit practices and convene the learning collaborative. Professional education will be conducted collaboratively with AAPOC and the OC Immunization Coalition (OCIC), a multi-agency collaborative, chaired by CHOC Children's infectious disease specialist and project expert, Jasjit Singh, MD. Additionally, we will work with other OCIC member organizations to lead education, help analyze/discuss data, and help develop a patient education campaign for practices.

Our partners at the California Immunization Registry (CAIR) will provide registry support at all participating practices, integrating with EHR systems, and developing a customized data collection method for the specific metrics needed for OCIIP. Practices will receive CME and MOC Part 4 at the successful conclusion of the project.

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Main Section of Proposal

Goal and Objectives

The overall goal of the Orange County Immunization Improvement Project (OCIIP) is to increase rates of the CIS Combo 10 immunizations (4 Dtap; 3 IPV; 1 MMR; 3 HiB; 3 HepB; 1 VZV; 4 PCV; 1 HepA; 2 or 3 RV; and 2 flu) before age 2 years by at least 5% over the 12-month project period. This measure corresponds with the recommended vaccine measures in this RFP and has been selected for our project because current immunization rates for Combo 10 are low in many practices throughout Orange County; the need for improvement is evident. It is also currently used by all of the MediCal and HMO payers for pay-for-performance. This will help not only increase rates, but will also serve as a strong incentive for pediatricians to participate.

To obtain this goal, OCIIP will meet the following objectives:

1. OCIIP will recruit 15-20 pediatric practices, focusing on practices affiliated with large OC health systems/medical groups. Practices will be representative of the diverse population of Orange County, and will have an CIS Combo 10 immunization rate below 50%.
2. OCIIP will develop a system for data collection and sharing/analyzing to support practice data collection and baseline data.
3. OCIIP will coordinate and facilitate four learning sessions with participating practices. 2 of these learning sessions will be conducted in person; 2 will be webinar sessions.
4. OCIIP will provide support to practices in identifying and implementing a minimum of 8 practice changes using PDSA cycles and reviewing/reporting on these changes during monthly practice updates.
5. OCIIP will convene practices at the final learning session to celebrate successful practice change interventions, review improved rates, and discuss sustainability and next steps for further improvement.

Current Assessment of Need

AAPOC is a unique chapter in that it comprises one county in California – Orange County. Orange County is the third largest county in California and the sixth largest in the nation, with a population of 3.2 million. We have remarkable racial/ethnic diversity with 45% speaking a language other than English at home, and 22% reporting that they do not speak English very well. The demographics are 46.2% Non-Hispanic Whites; 33.8% Hispanics or Latinos; 16.6% Asians; and 3.4% Non-Hispanic Blacks, and Other. Twenty-seven percent of children are younger than 4 years. There are approximately 900 pediatricians practicing in Orange County, with approximately half of these as members of AAPOC. Our chapter practice composition is as follows: 27% work in solo or small (fewer than 5 providers) practices; 45% in large practices; and, 18% in community clinic or hospital settings. For this program, we will focus our efforts on recruiting large health systems and medical groups representing multiple practice locations,

however small and solo practitioners who are interested in participating are welcome to join as well.

Overall childhood immunization rates in Orange County are improving. The percentage of children adequately immunized by Kindergarten has increased from 90.8% in 2007 to 95.5% in 2016. This improvement in overall rates does not share the full picture of childhood immunization in Orange County, however. Over the past decade, increasing numbers of children with delayed or refused vaccinations have led to reduced levels of vaccine coverage. For example, Capistrano Unified School District and Laguna Beach Unified School District (both communities in the southern region of the county), had rates of 89% and 84.7% respectively of up-to-date immunizations at Kindergarten enrollment. These are the two lowest school entry rates in the county. These rates are improving due to the establishment of SB 277 in 2016, which eliminates the personal belief exemption for the state childhood vaccine mandate. The result of this new law is an increase in immunization completion rates for school aged children, however, we are not yet seeing a similar effect on immunization completion rates for children by 2 years. The Orange County rate for children with up-to-date vaccinations at their 2nd birthday is only 78.9% (2014). (Up-to-date at 2nd birthday: 3 doses of polio, 4 doses of DTP or DTaP (diphtheria, pertussis and tetanus) and 1 MMR (measles, mumps and rubella)) (23rd *Annual Conditions of Children in Orange County Report* (2017)). Additionally, the rate of Combined-7 vaccine series (coverage among children 19-35 months) rate is only 65.3%. Influenza vaccine is not a required vaccine for school entry in California, and many practices document a low completion rate for influenza vaccine. Nationally, the Combined-10 vaccine series (coverage among children under 2 years) is very low, with a range of 51% for HMOs to 33.3% for Medicaid providers (National Committee for Quality Assurance, Child Immunization Status, 2016). Locally, most practices experience low Combo-10 rates of below 50%.

One vulnerable area for children not up-to-date on vaccinations is in preschool and child care. Child care and preschool programs are not mandated to require immunizations, but are mandated to report immunization rates in accordance with California Health and Safety Codes. Child care facilities with low immunization rates are at increased risk for outbreaks of vaccine-preventable diseases. In South Orange County, 18 child care and preschool facilities were identified as most vulnerable because of immunization rates of lower than 80%; with some centers documenting rates as low as 50% (California Department of Public Health, Immunization Branch, 2018). These data demonstrate a need for improvement of up-to-date immunization rates for children under 2 years.

OCIIP has identified a number of potential impacts this project will have on the target population. The primary impact would be improving vaccine rates among children under 2 years and increase the number of children who are up-to-date on their vaccines. This should also result in increased number of children fully vaccinated at child care and preschool facilities, leading to less vulnerable pockets throughout the county. Additionally, the OCIIP will

incorporate interventions to increase flu vaccine rates for children, and potentially establish systems to maintain this increased rate among practices.

As experienced with the AAP-CQN Phase 1 project, the OCIIP will result in increased number of practices using CAIR2 regularly, and establishing CAIR2 within their EHRs. We will also promote the establishment of Model for Improvement strategies into practices' management systems, resulting in further improvement activities in immunization or other practice areas.

Finally, the AAPOC has implemented several quality improvement projects over the past five years. Each of these projects included a fair amount of education for not only providers, but also for practice staff and patients/families. Presentations and materials developed for these educational purposes will continue to be used in Orange County, beyond the project timeline.

During participation in the AAP-CQN Immunization Phase 1 project, participating Orange County practices implemented a variety of interventions to improve immunization completion rates of the Combo 3 vaccines. The goal to reach an overall 80% rate for all participating practices, was not met, however

Target Participants and Recruitment

The OCIIP will focus practice recruitment efforts on our large health systems and medical groups, including, but not limited to CHOC Health Alliance, MemorialCare Medical Group, Hoag Health Systems, Monarch Health, and St. Joseph Health System. Recruitment of the larger groups will allow for greater system-wide improvement. While we anticipate recruiting and working directly with 15-20 practices, many will also be part of a system with shared EHR, opportunities for system-wide provider-to-provider learning, and wider scale dissemination of patient/family education. We estimate working with approximately 100 providers, serving an estimated 7,500 patients.

Recruitment Plan: AAPOC is known for its high quality continuing medical education programming, including the facilitation of successful quality improvement (MOC-4) projects. Practices that have participated in these projects have maintained their engagement in Chapter activities, and are active promoters of the current and future projects. The OC Immunization Coalition (OCIC) will also be an active leader in the recruitment process. AAPOC's Board of Directors values the Chapter initiatives and works diligently to actively recruit practices. The Chapter leadership will actively participate in the recruitment process among chapter members and board connections. Additionally, the topic of immunization continues to be a compelling one; many practices are eager to identify ways to increase immunization rates, address hesitant and refusing parents, and provide positive and accurate messages to the community about the need for strong vaccine rates.

The OCIIP will employ the strategies that have been successful in recruitment for previous projects. Our chapter has numerous means of communication with our membership and OC

collaborative partners. We will use these strategies to promote and register practices. OCIP staff will develop a straightforward registration packet and MOU for each practice. The packets will include a summary and timeline of the practice, the deliverables expected from the practice and from OCIP to practices, a checklist to ensure registration in CAIR2 is established, and a request/deadline for baseline data to be submitted. Successful recruitment will be based on the collection of signed registration/MOU packets.

Our estimated timeline for recruitment will be as follows:

- **December 2018 – January 2019:** Development of Registration and MOU packet; initial announcement/recruitment emails to membership and collaborators
- **January 2019 – February 2019:** Promotion and recruitment emails to membership and collaborators
- **January 2019 – February 2019:** Communication with health systems/medical group representatives
- **February 2019 – March 2019:** Finalizing of practices and groups; collection of completed paperwork
- **February 2019 – March 2019:** Collection of baseline data from participating practices

Participating practices will be expected to establish and complete the following:

- Currently use CAIR2 in their practice, or register and train to use the registry in practice
- Complete the registration packet and MOU
- Complete the baseline data collection deadline
- Participate in four (4) learning sessions during the project period
- Participate in at least 80% of monthly team meetings
- Complete all data collection periods
- Establish and complete a minimum of 8 PDSA cycles with practice providers and staff, during the course of the project period.

Based on our experience in previous quality improvement projects, we anticipate not only will the participating providers directly benefit from this project, but also the entire provider/staff population of the practice will benefit from establishing improved systems for immunization delivery and increased training/education regarding vaccines and promoting immunization in practice. This project will also directly benefit the medical systems in which these providers work, by identifying system improvement at the health system/medical group level, improving pay-for-performance rates for immunization, and engaging with all practices within the system. Patients and families will also directly benefit from these outcomes with improved education/information about vaccines, more efficient means of successfully staying updated on vaccines (e.g., reduced visits), and improved counseling for families concerned with immunizations. In our experience with past quality improvement projects, we have noted that many of the interventions implemented by practices are adopted as a practice.

As continuing medical education has been a pillar of the services we provide to our members and community, we are excited by increasing opportunities to move beyond knowledge-based education and into supporting practices with system changes and quality improvement. As we develop and refine the project model for the OCIIIP, we intend to also develop this as a template for quality improvement projects for other subject areas, based upon provider and community need. Moving forward, AAPOC anticipates at least one quality improvement project underway year-round. This development supports our chapter mission to achieve optimal health of all OC children, by **promoting pediatric excellence**.

In addition to the AAPOC and participating practices/providers, our collaborative partners will benefit from this project directly. The OCIC will increase its visibility within the community, as the go-to organization for up-to-date immunization data, information, and education. CAIR2 will benefit from greater visibility in this project, and a greater proportion of trained users, as we require registry participation for the project. As the project moves along, we also envision the health systems/ medical groups benefiting from some of their practices participating. The interventions tested in one practice can be scaled up to become a system-wide change, theoretically affecting many more practices in Orange County. We also envision that practices who are directly involved will create a culture of quality improvement within their practice, adopting the tools and strategies learned from the Model of Improvement to support other practice areas. AAPOC with the support from OCIC intends to publish the findings of this project to serve as a demonstration of the value of quality improvement in practice.

Project Design and Measurement Strategy

Project Design: OCIIIP will expand upon the successful interventions employed by the practices in the Phase 1 project. Continuing to use the Model for Improvement as our primary quality improvement strategy, we will employ quality improvement techniques and clinical education/training to increase immunization rates in Orange County clinical practices. The primary goal will be to increase rates of the CIS Combo 10 immunizations (4 Dtap; 3 IPV; 1 MMR; 3 HiB; 3 HepB; 1 VZV; 4 PCV; 1 HepA; 2 or 3 RV; and 2 flu) before age 2 years. We selected this measure because it is currently used by all of our local MediCal and HMO payers as a HEDIS measure for pay-for-performance. This will help not only increase rates, but will also serve as a strong incentive for both providers and health systems to participate in OCIIIP. The current immunization rates for Combo-10 mimic the low national rates as documented above.

Learning Session 1: Following the successful recruitment and registration of our participating practices, the OCIIIP will convene a learning session to kick off the project, and provide continuing education to practice team members. Topics at the first meeting will include a project overview, a presentation on the Model for Improvement and the application of AIM statements, practice drivers, and PDSA cycle development in practice, clinical information about the CIS Combo 10 immunizations, and an overview and Q & A about CAIR2 and data collection/analysis. A subsequent segment of the session will be devoted to practice teams discussing and developing their AIM statements and key practice drivers for practice

improvement. AAPOC will be the lead in convening and facilitating the learning collaborative. Professional education and training will be conducted collaboratively with AAPOC and our long-term community partner, the Orange County Immunization Coalition (OCIC), a multi-agency collaborative dedicated to improving immunization rates among all Orange County residents. The OCIC is chaired by Jasjit Singh, MD, pediatric infectious disease subspecialist at CHOC Children's Hospital. Dr. Singh will also provide the clinical education and serve as our immunization expert during the project period. Additionally, we will work with other members of OCIC, representing the OC Health Care Agency, UC Irvine, CalOptima (our MediCal managed care system), and the California State Immunization Branch to lead education, and serve as experts in their targeted areas, throughout the project period.

Team Meetings: Participating practices will be required to attend a monthly conference call (webinar) to review monthly data, discuss intervention successes and challenges, answer practice questions, and discuss the following month's intervention(s). Key Driver diagrams and PDSA cycles from practices will be reviewed at these meetings for further inter-practice education. These meetings are designed to be collaborative and a learning process for all practices. The meetings will be led by the AAPOC Project Coordinator and the Project Medical Director.

Data Collection: Participating practices will be required to collect data on a monthly basis for a total of 9 data collection periods (1 baseline, followed by a minimum of 8 monthly collection periods), to be shared with the OCIIIP learning collaborative members and discussed at monthly team meetings. Data will also be shared with AAP leadership, as required by this project. We will develop a web-based data collection tool through AAP's Quality Improvement Data Aggregator (QIDA) application specific to this project. Data from individual practices will be uploaded into this tool and will be available to all project participants. To support collection of practice data, we will work with our partners at the California Immunization Registry (CAIR2) to support established use of the registry at all participating practices, including integration with EHR systems, as needed. We will be incorporating the use of the Comprehensive Clinic Assessment Software Application (CoCASA) to obtain the required data from the registry. Staff at CAIR will provide technical assistance and training to practices unfamiliar with the software and needing assistance obtaining data. All Orange County health plans also use Combo-10 for their HEDIS measures; billing data can also be pulled in addition to EHR and CAIR data, to ensure all practices are able to obtain data in a timely manner. Practice data will be collected monthly and will include measures, such as rates for Combo-10 completion, missed opportunities data, and patients recalled for missed immunizations.

Additional Education: In addition to Learning Session 1 and the monthly team meetings, the OCIIIP will hold 3 additional learning sessions – two webinars, one additional in-person meeting - to provide practices additional education on topics identified as needed. These sessions will also provide the opportunity to share successes and challenges and identify opportunities to continue to implement quality improvement measures within practice, beyond the project

period, thus establishing a culture of improvement. Topics covered at each of these learning sessions will depend on the identified needs of the participating practices, but many will be selected from the topics provided in the AAP-CQN Phase 1 curriculum.

PDSA Cycles and Interventions: Participating practices will be required to develop and implement **8** PDSA cycles during the project period, coinciding with monthly data collection. Practices will use the PDSA cycle to plan and implement an intervention that they feel will help support improvement in Combo 10 vaccine rates in their practice. While each practice will work to identify the specific improvement interventions they feel are most needed and how to implement it most effectively in their practice, the OCIP will promote and place emphasis on interventions used in the AAP-CQN Phase 1 project that were found to be most successful. These interventions include, but are not limited to: implementation of patient recall systems; vaccinating at acute visits; reviewing vaccination status at all visits; integrating the use of CAIR2 into practices' daily workflow; providing practice provider/staff training on the use of vaccine office systems; and, incorporating effective communication strategies with families.

Existing Projects

The OCIP will build upon the work conducted as part of the AAP-CQN US Immunization Quality Improvement Project (Phase 1), where ten practices were supported to make sustainable changes in routine care and office processes to improve immunization rates for children 19-35 months old. Practices identified not only a need to improve immunization rates for young children in their practices, but also identified gaps in practice systems that when closed, resulted in improvements to their rates. One such finding was with reminder/recall systems. Most practices had no systems in place to contact patients who were due or overdue for immunizations. By establishing a recall plan in the practices, the number of patient recalls increased 2-fold in a 4-month period. Similar results were observed in other interventions, such as missed opportunities, and practice staff education on speaking with families about immunization.

The OCIC is a strong proponent of the use of CAIR2 throughout the county. As was previously required, participating practices will need to be registered and using CAIR2 in their practice. We anticipate that the number of practices using CAIR2 will increase, due to not only participation in the project, but also because of active promotion by AAPOC and OCIC in the community.

Anticipated Project Timeline

The following table represents our anticipated project timeline.

Date	Activity
December 2018 – March 2019	<ul style="list-style-type: none">● Recruit and register 15-20 Orange County practices, representing large health systems and/or medical groups.● Prepare and submit project baseline data
March 1, 2019	Project Kick-off Meeting
March – April 2019	Convene Learning Session 1
Monthly from April 2019 – February 2020	Hold monthly team meetings with practices
June – July 2019	Convene Learning Session 2 (webinar)
September – October 2019	Convene Learning Session 3
December 2019 – January 2020	Convene Learning Session 4 (webinar)
February – March 2020	<ul style="list-style-type: none">● Collect MOC attestations from participating providers; disseminate CME earned from learning sessions.● Require all final data to be entered by practices by February 28, 2020● Submit final project reports

Dissemination of Results

AAPOC and OCIC will work together on a collaborative meeting to report on the project outcomes. This meeting will be presented by project staff and leadership, as well as by key project participants, to discuss their practice experience. The target audience will be members of the OCIC, members of AAPOC, project participants, health network and medical group leaders, and insurers. Throughout the project, AAPOC will provide updates through our electronic communication channels and social media. Regionally, we intend to share our outcomes and project model with the other three California AAP chapters and their leadership in the hopes that they will be able to address similar needs in their regions.

The OCIP also intends to write up the outcomes and project in an article to be published. Dr. Singh and the OCIC members will support the necessary efforts to implement this task (e.g., obtaining IRB approval, identifying a technical writer to prepare the article, etc.).

Additional Information

The AAP-OC and OCIC are enthusiastic about this project, and look forward to successfully increasing immunization rates through quality improvement and systems change. We thank you

for the opportunity to present our application for funding of this project, and look forward to your decision.

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