

COVID-19 Vaccination Rapid Community Assessment

Teen Investigators Report

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**Submitted by Dr. Theresa Senft
for
Mid-Peninsula Boys and Girls Club
San Mateo County Health
U.S. Centers for Disease Control and Prevention**

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Executive Summary

In July 2021, sixteen teens from the Mid-Peninsula Boys and Girls Club (MPBGC) COVID Vaccine Education Program served as co-investigators of a rapid community assessment (RCA) focused on vaccine confidence among adolescents in San Mateo County (SMC). This was part of a pioneering effort by the Centers for Disease Control and Prevention's (CDC) Vaccine Confidence and Demand Team to directly involve teens in participatory research affecting their communities and encourage their voices in developing recommendations for outreach and messaging efforts. In coordination with SMC Health, SMC Office of Education, and the CDC, the MPBGC helped conduct an RCA to assess local perspectives and needs regarding adolescent COVID-19 vaccination; identify strategies to increase vaccine uptake (especially in areas and among groups experiencing lower vaccination rates); and provide early insight into parental or guardian intent for vaccinating children under age 12.

Working in conjunction with the CDC, teens from the MPBGC were able to:

- Develop and disseminate a survey for adolescents, which received 60 responses;
- Conduct 39 key informant interviews (KIIs) and listening sessions with adolescents and adults within and outside their families;
- Complete 15 online interaction analyses in teen-heavy environments;
- Assist CDC members with multiple observations and intercept interviews at 11 sites throughout the county, including vaccination clinics, food distribution sites, and libraries; and
- Pilot and assess new tools and approaches developed by the CDC for conducting adolescent participatory research.

Key Findings

The MPBGC investigators found that most teens they spoke with had either received at least one dose of a COVID-19 vaccine or else planned to be vaccinated in the near future. In addition, teen investigators noted high interest and enthusiasm in the community regarding the MPBGC and the CDC partnership, as well as strong interest in fostering youth-led participatory research and advocacy efforts, such as this RCA.

What is Working Well

- The ability to participate in after-school activities (e.g., team sports) was a strong enabler for teen vaccination.

- Several teens with families from historically marginalized communities saw themselves as information conduits and advocates for their families, as well as welcomed opportunities to become better informed about vaccines.
- On teen-favored digital platforms, misinformation was common, but it was also common to see teens debunking misinformation for their peers, often through popular online formats like memes or split-screen videos.
- Vaccine-related educational messaging resonates most strongly among teens online when presented in visual or video formats, such as those on YouTube's TED Ed channel.
- Pro-vaccine advocacy efforts appeared to resonate most strongly online when delivered with first-person emphasis.

Challenges

- Many teens find information about vaccine development and clearance processes confusing, leading to fears that things are being “rushed.”
- Teens feel that they lack clear and reliable sources regarding vaccine side-effects (e.g., variants, frequency, prevalence), making it difficult to combat misinformation.
- Teens feel frustrated that the general population is not familiar with common information literacy skills taught in high school classrooms, arguing that whenever people lack information literacy, misinformation flourishes.
- Some teens report having trouble getting their parents' consent to be vaccinated.
- Some teens feel that their views on vaccines and the pandemic are not taken seriously by adults, and that they are being dismissed as “just kids.”
- At times, teens struggle with older relatives who protest using a computer or phone to search for or verify health-related information, declaring themselves “technologically illiterate” and insisting on learning through face-to-face discussion only.
- At times, teens feel uneasy initiating health-related conversations about vaccines with adults who have an authoritative role (e.g., older teachers or coaches) or who generally seem to dismiss teenagers' concerns.
- Teens feel emotionally exhausted with the ongoing nature of the pandemic and are finding it difficult to stay vigilant, even knowing the increased dangers of the Delta variant.
- Teens find that their peers are frequently uninterested in discussing vaccine and health related issues because it doesn't feel “social.”

- Teens feel anxiety with over voicing questions, concerns, or fears about vaccines, as these types of conversations can be politically polarizing among peers.
- Teens encounter a substantial amount of health misinformation online, largely unlabeled by platform owners, especially on platforms that teens favor (e.g., TikTok).
- Teens online tend to express a general distrust of authority, and conservative-leaning teens frequently perceive government and medical officials with high levels of national media recognition as “in it for the fame.”
- Although teens still appear to favor first-person over institutional presence online, they are growing skeptical of celebrities and influencers with unearned expertise who give health advice.
- Too much health messaging for teens is still mainly text- and voice-driven, which is a problem for visual learners.
- Most messaging about vaccines does not feature young people or their perspectives.
- Teens find that the tone of a lot of COVID-19 health messaging is heavily focused on emotions that are demotivating to them, such as negativity, fear, and shame.
- Health-related messaging directed at teens (especially those capitalizing on trends or using humor) frequently just come off as “cringe” or “trying too hard to be cool” when created or delivered by adults.

Key Recommendations from Teen Investigators

Increase teen vaccine confidence

- Offer special classes devoted to understanding the vaccine development and authorization process.
- Launch ad campaigns about overcoming fears about vaccine side effects.
- Stage vaccine info-fairs hosted by popular teachers or coaches.
- Organize teen-led, judgement free conversation zones regarding vaccine concerns.

Address vaccine-hesitant parents and guardians

- Initiate school-led discussion sessions with vaccine-hesitant parents.
- Provide school-led guidance for parents on talking with teens about vaccines.
- Offer teen classes on communication strategies for speaking with older or more technologically-hesitant relatives.

Combat vaccine-related misinformation

- Lobby for clearer identification of misinformation on teen-favored platforms.
- Engage in reminder campaigns that emphasize information literacy principles like Currency, Reliability, Authority, and Purpose (C.R.A.P.), an information literacy system taught in SMC high schools..

Deliver health messaging that better resonates with teens

- Know which platforms teens enjoy using, and what they like to do there.
- Increase efforts to deliver scientific messages in visual formats.
- Engage teens to help create messages in formats like memes and challenges.
- Use caution when relying on influencers and media-heavy medical professionals; have processes to vet them.

Empower teens with regard to their own health choices

- Reward teens currently acting as vaccine champions.
- Provide more training and support for teens interested in becoming vaccine champions.
- Hire teens to make funny teen-focused health media messaging.
- Make greater efforts to directly engage teens in public health departments and organizations.

Introduction

In July 2021, sixteen teens from the MPBGC COVID Vaccine Education Program served as co-investigators alongside members of the CDC, as part of an RCA focused on vaccine confidence among adolescents in SMC. This RCA was conducted in coordination with SMC Health and SMC Office of Education. The MPBGC's participation was part of a pioneering effort by CDC's Vaccine Confidence and Demand Team to directly involve adolescents in participatory research regarding vaccine confidence in their communities and encourage their voice in developing recommendations for outreach and messaging efforts.

The RCA is a public health tool used to systematically collect time-sensitive data using qualitative methods such as in-depth interviews, listening sessions, surveys, and direct observation. RCAs are used to provide local and state partners with focused, practical, locally relevant, and timely information to guide decisions for public health policy research, and practice. RCAs complement other public health efforts by providing rich, contextual data from a local perspective to explore issues or questions that arise during surveillance, program, and research activities.

The CDC partnered with MPBGC to conduct an RCA, training summer youth interns to serve as co-investigators on the project. By partnering with teens in the MPBGC's COVID Vaccine Education Program, the CDC was able to pilot new tools and approaches for conducting adolescent participatory research.

This report provides an overview of the SMC RCA's research context, objectives, and findings, focusing particularly on the work of the teens involved with the RCA. This report is intended for SMC Health, SMC Office of Education, and other partners to understand the needs around adolescent COVID-19 vaccine uptake and to develop strategies to address those needs. A report on the CDC component of the RCA will be documented separately.

Background

San Mateo County

SMC is located in Northern California and has a population of 766,573 people with an average household of 2.87 people. The majority of the population is White (48%), Asian (24.6%), and Hispanic or Latino (19.3%). The average household income is \$122,641, with 6.1% of people living in poverty, and 5.8% of the county uninsured. There is also a sizable immigrant population, with 34.8% of the population born outside of the U.S. and 45.7% of households where languages other than English are spoken.

This RCA focused on areas of SMC experiencing lower adult vaccination rates, including Half Moon Bay/El Granada/South Coast; Redwood City/North Fair Oaks; Daly City/Broadmoor; South San Francisco; Central San Mateo; and East Palo Alto. As of August 15, 2021, the vaccination rates within these areas of focus were less than 84%. Vaccination rates for 12-17 year olds across all SMC were approximately 60% per SMC Health when the RCA began.

Mid-Peninsula Boys and Girls Club COVID Vaccine Education Program

The RCA investigation team included adolescents from the MPBGC COVID Vaccine Education Program, a paid summer internship and workforce development program. As one of three Boys and Girls Clubs in SMC, MPBGC serves children and teens in Central and North SMC, including San Mateo, Foster City, Lomita, Millbrae and Daly City Bayshore Communities. 92% of MPBGC members are from minority races/ethnicities; 93% qualify for free or reduced lunch; 67% come from single-parent households; and 75% of members' households speak another language other than English.

The COVID Vaccine Education Program was spearheaded by MPBGC Executive Director Evan Jones to address disparities in vaccination among the youth and families served by the club. Daily management of the program was led by Director of College and Career Success Karen Chin. This summer's internship program cohort consisted of sixteen teens,

mostly rising juniors and seniors in high school, who had expressed interest in pre-med or public health and in conducting community assessments. Five of the teens self-identified as male, and eleven as female. The majority were from East Asian households with low economic resources. To help offset the fact that they would ordinarily take part-time jobs to help their families during the summer, interns received a stipend for their time training for and conducting the RCA.

RCA Objectives

- Identify and understand barriers, facilitators, and recommended strategies for adolescent vaccination by engaging teens and their families as well as the organizations and systems that serve them.
- Provide early insight into parental or guardian intent for vaccinating children under age 12.
- Develop a body of evidence for MPBGC and SMC Health to draw from in developing an outreach campaign to address disparities in COVID-19 adolescent vaccination.
- Enable SMC adolescents to learn about participatory research and have a voice in developing messaging for SMC.
- Pilot new tools and approaches for conducting adolescent and digital RCAs.

Partner Roles

Mid-Peninsula Boys and Girls Club

- Provide platform and organizational support for training and supporting adolescent co-investigators
- Adolescent co-investigators conduct KIIs and listening sessions among adolescent peers, parents, and community members
- Adolescent co-investigators conduct digital observation and analyses

CDC COVID-19 Vaccine Confidence and Demand Team

- Provide training for adolescent co-investigators
- Develop materials used for adolescent and adult RCA components
- Conduct KII and listening sessions among school, health, and other community leaders
- Conduct KII and listening sessions among underrepresented SMC adult groups

SMC Health & SMC Office of Education

- Identify informational gaps and provide priorities for adolescent and pediatric vaccination
- Identify key individuals and community organizations that should be contacted for RCA

Methods

This RCA was different from previous ones in three significant ways. First, it focused on vaccine confidence among adolescents and their communities. Second, it involved a division of fieldwork and analysis labor between CDC and MPBGC investigators. While the CDC investigators focused on gathering information from organizations serving teens and their families (e.g., schools and healthcare providers) in underserved parts of SMC, MPBGC investigators focused on their peers, family members, and other adults outside the family in their local areas.

Third, its piloting of a qualitative research method called “online interaction analysis,” designed to produce fine-grained insights about how teens are currently interacting over favored digital platforms like TikTok, YouTube, Instagram, Snapchat and Twitch. A decision was made to pilot this strategy for two reasons. First, most of the popular teen platforms have closed APIs, which means they cannot be studied using “social media listening” tools like CrowdTangle or Tweet Deck. Second, a substantial amount of communication among teens online happens via images, photos, videos, memes, trends, and challenges which require teen contextualization and explanation to be understood by adults.

From the onset of this RCA, teen investigators from MPBGC faced some structuring limitations. Due to the rise of the Delta variant in California at the time, a decision was made that teens should focus their interview attention on peers and adults in their local geographic regions (often interviewing over Zoom, with cameras turned off to ensure confidentiality.) On occasion, MPBGC investigators accompanied the CDC to clinic and other site visits across the wider SMC region, but there, direct conversations were chiefly with adults serving teens in public health and education settings, rather than with teens themselves. To fill the gap, some efforts were made to speak with teen leaders working with other community organizations elsewhere, including Star Vista, One East Palo Alto, and Sequoia Teen Health Center.

Overall, MPBGC investigators:

- Developed and disseminated a survey for adolescents, which received 60 responses from teens.
- Conducted 39 KIIs and listening sessions with adolescents and adults within and outside their families, receiving 25 responses from teens.

- Identified and analyzed 15 separate online interactions where teens expressed their feelings about the COVID vaccine, or the pandemic more generally.
- Assisted CDC members with multiple observations and intercept interviews at 11 sites, including vaccination clinics, food distribution sites, and libraries
- Spoke with teen leaders at organizations like One EPA, Star Vista and Sequoia Teen Health Center

Teen Training & Deployment Supervision

Before being deployed in the field, MPBGC teen investigators received education on COVID-19 vaccination and the RCA framework. They were also given in-depth age-appropriate training in behavioral research methods.

Instructors and Facilitators

Education on COVID-19 vaccination was delivered by Director of College and Career Success Karen Chin. An overview of the RCA approach and process was provided by CDC contractor Aparna Ramakrishnan. Thereafter, students received training and supervision in a range of behavioral research methods including surveying, interviewing, conducting group listening sessions, and online interaction analysis. This was delivered by Theresa (Terri) Senft, a Senior Lecturer who specializes in digital and youth culture studies at Macquarie University in Sydney, Australia. Whenever possible, classes were attended and student break-out sessions facilitated by the CDC investigation team of Elisabeth Wilhelm, Daiva Yee, Amadea Britton, and Aparna Ramakrishnan, CDC contractor Scotti Leonard, and CDC volunteer Alexander Senft.

Duration and Structure

Training included 18 total hours of classroom time, spread over 6 weeks. Originally, it was expected that teen training and field deployment would take no more than two weeks, and teens were told they needed to make themselves available for 1.5-hour training sessions on Wednesdays, Thursdays and Fridays. In addition, they were told they should anticipate spending an additional 4-5 hours outside classes on tasks relating to fieldwork brainstorming, planning, execution, and analysis. As teen interest in the project grew, the timeline for training grew as well.

Timeline

The final timeline roughly followed this order:

Week 1: Led by Karen Chin

- Steps in Vaccine development
- Communication and presentation of bias
- Principles of Health equity

Week 2: Led by Karen Chin and Aparna Ramakrishnan

- The Ecological Model of Health Policy Research
- Community Mapping
- The RCA Process

Week 3: Led by Terri Senft, Karen Chin and CDC supporting

- Introduction to Field Research Methods
- Designing Survey Questions
- Conducting Interviews & Group Listening Sessions
- Online Observations
- Ethical Guidance: Securing parental consent, protecting data

Week 4: Led by Terri Senft, Karen Chin and CDC supporting

- In the field: recording, logging, and securely storing your data
- After the field: thematically coding responses
- As a group: looking for thematic trends

Week 5: Led by Terri Senft, Karen Chin and CDC supporting

- Articulating Challenges
- Developing Recommendations

Week 6: Led by Terri Senft, Karen Chin supporting

- Video packaging of teen presentation
- Live delivery of teen presentation

Assessment

To receive internship credit and their stipend, MPBGC investigators were expected to attend training, complete their fieldwork assignments, and create a short video reflecting on their internship experience. Because Terri Senft wanted to assess their baseline skills, she administered a questionnaire prior to the training. MPBGC designed a questionnaire used to assess students at the end of the internship program.

Findings

The findings outlined below are presented based on the responses from teens and adults in their communities who MPBGC investigators spoke with throughout the assessment. They shared what they felt was working well and what challenges still existed regarding COVID-19 vaccine confidence and uptake. They also shared facilitators and motivators for increasing vaccine confidence among adolescents and their parents and guardians. Note that there is a separate in-depth report on findings from CDC accompanying this report.

What is working well

- Most teens interviewed shared that they had received a COVID-19 vaccine or else had plans to be vaccinated shortly.
- Most teens surveyed shared that being permitted to participate in after-school activities like team sports figured heavily in efforts to get vaccinated.
- Several teens with families from historically marginalized communities shared that it was important to them to have access to high-quality sources about vaccines, as they saw themselves as information conduits and advocates for their families.
- Although it is common to see vaccine-related misinformation circulating online, especially on teen-favored digital platforms, it is also common to see teens debunking misinformation, often through formats like memes or split-screen videos.
- Among teens interviewed, vaccine-related educational messaging resonated most strongly when presented in visual or video formats, such as those on YouTube’s TED Ed channel.
- Among teens observed online, pro-vaccine advocacy efforts appeared to resonate most strongly when delivered with first-person emphasis. Examples include face-to-camera confessional videos from recently vaccinated teens discussing issues like side effects, and participatory exercises like the “vaccine arm” dance challenge on TikTok.
- Among teens and adults interviewed, there was strong interest and enthusiasm in the MPBGC and the CDC partnership, and strong interest in participating in future collaborations between national health bodies and community-focused organizations like the Boys and Girls Club—especially collaborations designed to foster youth-led participatory research and advocacy efforts, such as this RCA.

Challenges

In their discussion with and observations of teens online, the researchers uncovered the following challenges:

1. Health information access and understanding
2. Beliefs and values
3. Family, peers, and authority figure (e.g., teachers, coaches) norms
4. Online interactions
5. Media messaging

1. Health information access and understanding

Teens reported being most confused about the development and clearance process for COVID-19 vaccines. Several teens reported being highly vulnerable to the argument that

vaccines were being approved too quickly, and then “things might be being pushed on us too fast.”

Teens also spoke about needing clearer and more trustworthy information regarding vaccine side effects: While some felt wary about side effects themselves, most spoke about being unable to successfully counter perhaps overblown fears from friends and family members.

2. Beliefs and values

By a substantial margin, the overwhelming sentiment expressed by teens was emotional exhaustion with the ongoing nature of the pandemic (often dubbed “COVID fatigue.”) For some teens, this led to questions about how long they could remain vigilant about following health advisories, even in the face of new warnings regarding the impact of the Delta variant on teens.

Nearly all the teens interviewed reported either that they were already vaccinated themselves or were planning to be vaccinated. When asked about anti-vaccine sentiment, a few teens of color noted that some people they knew were hesitant to get vaccinated because of prior medical trauma in their communities.

Whether advocating for vaccines or hesitating over them, most teens felt their personal autonomy should be respected, with the language “my body, my choice” used more than once.

3. Family, peers, and authority-figure norms

Norm-related challenges were researched in three categories: Among peers; within families; and when dealing with adults in authority such as teachers or coaches.

In home environments, some teens who wished to be vaccinated reported trouble securing their parents’ consent. Other teens talked about the challenges of talking about vaccines in homes where parents, guardians, or other family members hold views that do not support vaccination. Some teens shared that they struggle to have their views on vaccines and the pandemic taken seriously by adults in the home because they were perceived as “just kids.” A few teens mentioned older relatives who saw computers and phone screens as a barrier of sorts, and “shut down” health-related conversations involving these.

It is worth noting that even when they felt at odds with their families, teens appeared to be more comfortable talking with family than with their peers about the COVID-19 vaccine, or the pandemic more generally. Perhaps related to the “COVID fatigue” mentioned earlier, many teens reported a general lack of interest in discussing vaccine-related sentiment with their friends, with several noting that the topic doesn’t feel ‘social.’ Teens also spoke of their

anxiety over voicing questions, concerns, or fears about vaccines, lest these be seen as somehow politically polarizing: in the words of one teen, “I don’t want to get cancelled.”

When it came to speaking with adults outside the family (e.g., teachers, coaches) about vaccines or health-related issues more generally, teens said they were open, but only if the adult was the one initiating the conversation. Another challenge teens mentioned was how difficult it felt to connect or relate to authority figures who are much older or seem uninterested in the concerns of teenagers.

4. Online interactions

Because teens spend so much time online these days, it’s probably not surprising the researchers heard some challenging things about their experiences there. In the survey, teens displayed a general distrust of information received over social media, and more trust of information related from public health authorities. A question not addressed in the survey was the degree to which teens consider public authority pages on YouTube, TikTok or Instagram to be “information on social media.”

A common complaint among teens online involved the large amounts of unchecked misinformation on platforms they favored. At the time of the interviews, the most vocal vaccine denier strategy seemed to involve over-emphasizing side effects. Although teens noted some conspiracy-oriented thinking on platforms, they saw far more expressions of general distrust of authority, including the government and medical systems.

Ironically enough, one of the more popular techniques to debunk misinformation on platforms like TikTok can also recirculate misinformation there. This technique involves creating a video that features a split screen. One side of the screen features someone spreading misinformation. The other side features the video creator, who interrupts at strategic moments to rebut the information. As the technique has grown in popularity, it has been used by conspiracy theorists and others to “rebut the rebuttal”—at times recirculating the original misinformation beyond its first landing places online.

It is a now-common observation that young people online increasingly rely for life advice on popular figures like influencers. Yet in interviews, teens reported feeling increasingly suspicious of celebrities and online influencers positioning themselves as health authorities. Online, there were even objections to the appearance of “star” medical spokespeople such as Dr. Fauci, who was dubbed by politically conservative teens as “clout seeking”.

5. Media messaging

The researchers made a point of asking teens to recall ads they thought really worked well, and those they thought were awful. When it came to media messaging about vaccines, we

heard four main complaints. The first was that too much informational messaging is still text and voice driven, which is a problem in the age of visual learning. The second was that most messaging about vaccines doesn't feature young people or their perspectives. A major concern had to do with the tone of a lot of messaging, which teens experienced as centering too heavily on demotivating emotions like negativity, fear and shame. Yet while teens emphasized the importance of staying hopeful and upbeat, they warned against adults making overly funny ads directed at teens, noting how these frequently just come off as "cringe" or "trying too hard to be cool."

Recommendations from Teen Investigators

The teen researchers developed recommendations in the following categories:

1. Increasing teen vaccine confidence
2. Addressing vaccine-hesitant parents and guardians
3. Countering vaccine-related misinformation
4. Delivering more teen-resonant health messaging
5. Empowering teens to advocate for their health needs

1. Increasing teen vaccine confidence

To address teens' need for better information regarding the vaccine approval process, they recommend a series of educational campaigns (e.g., in schools, online) that teach the steps involved in the vaccine development and clearance process, delivered in places teens study and socialize.

To alleviate fears among teens and adults in their communities regarding yet-unknown vaccine side effects, they recommend an awareness campaign, ideally featuring individuals who had specific vaccine concerns, who then received the vaccine safely themselves.

Several teens mentioned being fearful to talk about vaccines to people outside their family, because things can get heated. For this, the researchers recommend youth-led focus groups to share views on vaccine confidence. These could be offline and online "safe zones" (could even be anonymous) for sharing thoughts. The group Made to Save has a great [virtual training for youth](#) on how to talk to friends and family about vaccines.

Adults beyond the family have an important role to play in helping teens feel more secure about vaccines, but several teens reported trouble emotionally connecting with some older teachers and coaches. As a possible remedy, the researchers recommend recruiting younger teachers and coaches to serve as vaccine champions. One possibility would be to invite them to serve as host or emcee of a Vaccine Expo (like Mac Expo), where people would be encouraged to give 2-3 minute showcase talks about the vaccine.

2. Addressing vaccine-hesitant parents and guardians

Some teens face an uphill battle when it comes to convincing their parents or guardian to give permission for them to be vaccinated. Here, we ask that the school system serve as a bridge of sorts. We recommend that school counselors and others try to schedule talks with parents about their concerns regarding vaccines and share reliable sources with them. An important first step in this process involves listening closely to learn who parents do trust when making health choices for their children.

Teens report feeling sometimes feeling awkward initiating conversations about topics like vaccines with parents and guardians. They far prefer the adult to take the initiative, but also know the conversation can be hard, particularly if the family is struggling with illnesses or pre-existing health conditions that lead to anxiety about vaccines. To help, they recommend sessions (at places like school orientations) for parents and guardians to learn how to talk to teens about vaccines. School websites could also feature ‘testimonies’ from parents offering strategies for talking with teens.

Finally, to assist teens with older relatives struggling with “screen fear,” the researchers recommend schools and youth programs consider offering specialized training for teens in how to communicate health information found online without electronics (e.g. using printed graphics, etc.)

3. Countering vaccine-related misinformation

To address teens’ struggle with misinformation on popular teen social platforms like TikTok, Twitch, Snapchat (and on nearly all gaming platforms) the researchers recommend adults place greater pressure on platform owners to provide clearer labeling of misinformation, and quick links to help teens identify accurate sources.

Teens in the SMC education system already receive training in information literacy. To extend this to the public, they recommend health authorities issue reminders to assess information using the C.R.A.P. method. Ideally, these reminders would be delivered both online and offline in places like popular shopping centers.

4. Delivering more teen-resonant health messaging

With regard to messaging platforms, teens recommended health authorities develop a clearer understanding of the platforms teens favor most for communicating, and the formats they respond to best. Here, they repeatedly emphasized the importance of health messaging that emphasizes visuals over text and talk. Examples worth emulating in this regard can be found at YouTube channels TED Ed, Amoeba Sisters, and Crash Course.

With regard to message content, teens almost unanimously felt that rather than fear or shame, motivation should happen through positive messaging, such as reminders about how great it will be to return to normal. With regard to deliverers of messages, teen recommendations were less clear: although they continue to express interest in first-person deliveries from individuals with a degree of fame, teens claim increased suspicion of health

messaging coming from celebrities, online influencers, and (among some teens) even medical professionals deemed to have too high a media profile. To manage this, the researchers recommend more health messaging in the form of social media interviews and videos with locally known physicians, and/or partnerships with influencers who have actual medical training on channels like Nurses of TikTok.

Finally, with regard to tone: most teens interviewed felt that when it came to delivering health messages using teen-favored formats like memes and dance challenges, it was quite easy to tell which efforts were initiated by teens themselves and which were not. Many teens recalled “funny” videos made by adults targeting younger viewers that largely backfired. To help, they recommend paying young people to create and distribute media messages in teen-favored formats, distributing them in ‘guerilla’ ways teenagers enjoy, such as posing them anonymously on Reddit, or adding an odd hashtag.

5. Empowering teens to advocate for their own health

To address the rise in teen complacency that seems to be accompanying “COVID-fatigue,” the researchers believe it is worth rewarding teens who contribute to national efforts to keep vigilant and alert regarding COVID-19. Teens who organize vaccine drives, set up information booths at sports events, or arrange peer group conversations should be spotlighted and celebrated. While teens reported that money would be a nice incentive, other types of rewards would also suffice, such as gift cards, tickets to events, certificates, dubbing someone a “health ambassador”, and more.

Especially online, it is not uncommon to hear teenagers say they trust neither the government nor the medical system. For this, the researchers recommend training and deploying teen vaccine champions who are willing to step in and have conversations with other teens online. To develop this cohort, the researchers recommend more opportunities for direct teen involvement in government and medical systems. An example would be this RCA, which was co-sponsorship between the CDC, MPBGC, the Health Department and the Department of Education.

Products from Teen Investigators

Formats

1. Video: [Teen Investigator RCA Findings and Recommendations](#)
2. Infographic handout: [Selected Teen Investigator Findings & Recommendations](#)

Next Steps

Awareness Campaign

- MPBGC has received funding to develop a youth-led education and outreach campaign aimed at encouraging youth and their families to be vaccinated against COVID-19.

Youth Summit

- Sequoia Teen Health Center is facilitating the planning and implementation of a Youth Summit to map and connect existing youth-centered initiatives, identify additional strategies and opportunities for collaboration, and expand the network of youth engaging in COVID-19 vaccination outreach. Some youth from MPBGC are actively participating in this process.

Recommendations for Engaging Teens as RCA Co-Investigators

The following recommendations are suggested for engaging teens as RCA co-investigators:

1. Partner with community organizations serving teens
2. Respect partner protocols and desires
3. Be mindful of ethical considerations when working with minors
4. Center participatory design and engagement
5. Promote teen autonomy and networking

1. Partner with community organizations serving teens

Reaching and engaging teens in RCA efforts should ideally be done in partnership with organizations that have relationships and experience working with teens, especially in underserved or marginalized communities. In addition to schools, this might include Boys & Girls Clubs, YMCAs, teen centers, cultural and/or faith organizations with youth groups. Teens are more likely to participate in (and their parents/guardians more likely to allow participation in) research initiatives coordinated by community organizations they trust. Further, these organizations will understand how to effectively and equitably mobilize, train, and support teens in conducting research.

In this instance, CDC learned that the MPBGC was creating a paid summer internship program to engage teens in developing a culturally responsive campaign to encourage COVID-19 vaccination in their communities. CDC then offered their support in conducting an RCA in partnership with the teen interns to provide insights and ideas to inform campaign development. Working together and

with the support of SMC officials, CDC and MPBGC were able to train and support teens in planning, implementing, and analyzing research from their peers and adult community.

2. Respect partner protocols and desires

When engaged in partnership with any community organization, but especially organizations dealing with adolescents, it is important that training, fieldwork deployment, and communication map to partner-established protocols for engaging teens.

In the instance of this RCA, that meant that training needed to be held during allotted COVID Vaccine Education Program internship hours of 2:30-4:30 pm, Pacific Time. The MPBGC website is designed for promotion, rather than instruction, so arrangements needed to be made to provide teen investigators a site that consolidated all their class plans, homework assignments, lectures, fieldwork resources (brainstorming aids, procedure and analysis guides) and instruments (interview questions, parental permission forms, etc.) For this, Terri developed the [Teen RCA Training website](#).

Because of COVID-19 restrictions, classrooms at MPBGC were unavailable, which meant training was conducted over Zoom. To accommodate MPBGC's commitment to serving teens from a range of home environments and technological bandwidth, most Zoom classes mixed lectures, skills workshops and time spent together in "breakout rooms." There, students worked as teams on assigned tasks, discussed with facilitating CDC members any issues arising during fieldwork, and canvassed one another for questions, which were then discussed with the class as a whole. A typical training day was structured as follows:

3:00-3:10:	Go over prior evening's homework assignment together
3:10-3:20:	Mini lecture 1 from Terri (overview topic)
3:20-3:40	Group work 1 (in breakout rooms)
3:40-3:50	Ten minute break
3:50-4:05	Reconvene to discuss
4:05-4:15	Mini lecture 2 from Terri (skills-based topic)
4:15-4:25	Group work 2 1 (in breakout rooms)
4:25-4:30	Wrap up and homework assignment for the evening

Because this RCA was directly tied to an internship program, MPBGC teens expressed a strong desire for help with communicating what they had learned into language that would flow into documents like resumes and college applications. To assist them, Karen Chin and Terri Senft worked together to develop a paragraph length description of skills learned during the RCA, created a list of research-related "buzz terms," and engaged in mock question and answer

sessions designed to simulate the experience of communicating lessons learned during the internship experience.

Throughout the RCA, MPBGC actively encouraged interactions between teens, training instructors, and CDC members, with the strict provision that these should be in the presence of (or if in email, copied to) Karen Chin. When it came to transportation issues, MPBGC policy was that teen investigators could not travel with adult CDC members unless they were riding in the MPBGC van, accompanied by Karen Chin.

3. Be mindful of ethical considerations when working with minors

When engaging in any RCA, there are three minimum ethical considerations that must be addressed. First, researchers must secure informed consent from subjects. Next, provisions must be made to accommodate any vulnerable subjects included in the study. Finally, subject confidentiality must be secured. This is usually done by (1) maintaining all collected interview and survey data on a secure server; and (2) using de-identification practices in reporting findings. Common practices include omitting names or using pseudonyms when quoting people, removing geographic references that could link subjects to particular addresses or places of work, and omitting or blurring faces appearing in shared images.

When working with teen researchers and respondents, it is important to bear in mind that all adolescents are minors, and guidelines for securing informed consent from minors varies by state. In California, minors may or may not need parental consent, depending on the minor's legal status (some are considered to be "emancipated" from parents and guardians); and nature of the activity (there are different guidelines for personally accessing medical procedures like immunization without parental consent, than for participating as a researcher in or a respondent to a research project like an RCA).

All minors are automatically considered vulnerable subjects, with higher risk than adults for potential physical or emotional trauma while undergoing experiences. Vulnerability concerns figured into our decision to limit MPBGC teen investigators to interviewing only teens and adults in their communities, even though many investigators had younger siblings eager to be interviewed.

Because this RCA involved teens as both researchers and subjects, it was important to think about securing informed consent at two levels. With respect to the teen investigators, MPBGC had secured blanket parental approval for them to participate in field research with the CDC as part of the internship program, but all travel involved additional parental permission forms.

With respect to teen interview subjects, a decision was made that parental permission be secured from all respondents, including those who might qualify for exclusion under California law. For this, Terri Senft produced a document for parents and guardians that spelled out the nature and scope of the RCA; discussed what was being asked of teen respondents; addressed how data protection and teen confidentiality practices that would be implemented; and invited parents interested in the

RCA findings to provide email addresses for further updates. Teen investigators were instructed by Terri Senft that they had to demonstrate parental consent for respondents to participate prior to starting any interview or group listening session, by uploading a signed copy of the parental consent form to the MPBGC's secure drive.

While subject confidentiality guidelines for adolescents participating in traditional research formats like interviews are relatively clear-cut, they are less so in digital environments. Although it is not necessary to secure informed consent to study people interacting in publicly viewable forums online, ethically speaking, teens especially tend to feel that that only someone malicious would quote the words someone said or the images they showed online (even in public forums) stripped from the original contexts in which they were created. This is increasingly an issue with the rise of teen advocacy, influence, and popularity online. Historically, confidentiality protections haven't applied to individuals known as "public figures" like politicians, celebrities, and online influencers. Yet there is growing sentiment that teens who appear online as celebrities, influencers, and advocates should receive some level of identity protection in publicly circulating reports, lest they forever be tied to as adults to sentiments they expressed as vulnerable minors.

4. Center participatory design and engagement

Early on in the training design, all parties agreed that if MPBGC teens were going to serve as true co-investigators, they needed to have a say in the design of the research instruments for this RCA—particularly the ones meant to canvas sentiment among their peers.

To strengthen bonds among teens who would have ordinarily gathered in the same space to train, a decision was made to break the 16 member group into smaller research teams of 4, each with a self-nominated leader, for the duration of the RCA. To facilitate out-of-class communication between the teen teams and with the CDC investigators, a Slack site was established.

By Week 3 of training, the MPBGC investigating team was sifting through a bank of CDC-approved survey questions, editing these to better reflect contemporary teen practices around issues like gender and racial identification. After a final consultation with CDC investigators, they released a Teen Vaccine Confidence Survey, promoted via personal and MPBGC networks. Shortly thereafter, the teen investigators began deciding which of the questions developed by Terri Senft (for peers, for adults in family, and for adults beyond family) they thought would best "fit" with the interview and group listening sessions they had arranged, adding elements (e.g. deciding to discuss a popular meme) where appropriate.

Finally, the MPBGC investigators were told that when it came to vaccine sentiments expressed by teens online in formats like memes, challenges, and trends, they would change from students to teachers, instructing CDC investigators on how to locate, decode and translate such messages to interested (if sometimes confused) adult audiences.

Throughout conversations with the MPBGC teens, CDC investigators strove to keep delivering the message that to be a strong investigator, one must remain a perpetual student. Responding to ongoing concerns from the teen researchers that they might not “know enough” about vaccines or research techniques to do their fieldwork properly, instructors continuously reiterated that even health professionals struggle to keep up with changing guidelines on vaccines, that they did not need to be a medical expert in order to conduct behavioral research of value, and that as long as they complied with ethical guidelines, “let me ask someone and get back to you on that” is a completely acceptable and appropriate response to any question asked.

5. Promote teen autonomy and networking

When it came to engaging in actual fieldwork, MPBGC teens were expected to exercise autonomy as researchers. Each teen investigator was expected to identify potential research subjects and online interactions for study, and then conduct at least 2 interviews (or group listening sessions) and 1 online interaction on their own. They were then expected to work on their own to thematically code responses and observations, using a grid designed by Terri Sent to help them think in terms of aids and hindrances to vaccine confidence.

With a full data set submitted and preliminarily coded, investigators worked in their research teams. To streamline the process of developing findings, each team was assigned a specifically coded set of responses and observations to synthesize, and then the group came together as a whole to articulate challenges and brainstorm recommendations. When it came time to develop their formal presentation to health authorities, the teens divided up again, this time by personal strength—some worked on developing visuals, others on a narrative that could be used as a script, others creating a video, and still others developing opening statements and follow-up questions for live presentation opportunities. By the end of this RCA, the teen researchers had grown quite comfortable cycling through patterns of working alone, working in smaller groups, and working together as a full unit.

In RCAs going forward (especially those involving teens), it may be advisable to build in training exercises expressly designed to teach teen investigators how to locate, contact, and network their efforts with those other teen groups doing advocacy work in their communities. The upcoming Youth Summit (mentioned under “next steps”) is an example of an effort to do this in SMC.

Tools & Resources

Interview Fieldwork Packet

1. [Steps Before, During and After Interviews & Group Listening](#)
2. [Parent/Guardian Permission Form](#)
3. [Consent Script & Permission to Record](#)
4. Questions for Interviews & Group Listening Sessions
 - [Questions for Teen Interviews](#)
 - [Questions for Interviews with Adults in Family](#)
 - [Questions for Interviews with Adults Beyond Family](#)
5. Note-taking and Interview Summary Grids
 - [Grids for Teen Interview](#)
 - [Grids for Adult-Family Interview](#)
 - [Grids for Adult-Outside Family interview](#)
6. Coding Forms
 - [Teen Respondents](#)
 - [Adult respondents \(in family\)](#)
 - [Adults respondents \(beyond family\)](#)

Group Listening Session Fieldwork Packet

1. [Steps Before, During and After Interviews & Group Listening](#)
2. [Parent/Guardian Permission Form](#)
3. [Opening Consent & Permission to Record](#)
4. Questions for Interviews & Group Listening Sessions
 - [Questions for Teen Interviews and Group Listening Session](#)
 - [Questions for Interviews & Listening Sessions with Adults in Family](#)
 - [Questions for Interviews & Listening Sessions with Adults Beyond Family](#)
5. Note-taking and Interview Summary Grids
 - [Grids for Teen Group Listening Session](#)
 - [Grids for Adults-Family Listening Session](#)
 - [Grids for Adults-Outside Family Listening Session](#)
6. Coding Forms
 - [Teen respondents](#)
 - [Adult respondents \(in family\)](#)
 - [Adults respondents \(beyond family\)](#)

Observing Online Interactions (Locations & Objects) Fieldwork Packet

1. [Grids for analyzing online interactions](#)
2. [Form for Coding online interactions](#)

Observing Meetings Fieldwork Packet

1. [Grid for recording your observations during meetings](#)

Survey Links

1. [Teens survey](#)
2. [Adults survey](#)

Brainstorm Guides

1. [Brainstorming Teen-focused Survey Questions and Interview Approaches](#)
2. [Brainstorming Online Interactions & Objects to Study](#)

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