AAMC

Tomorrow's Doctors, Tomorrow's Cures®

CORE® Connected Care: eConsults and Other Clinical Innovations Promoting Primary Care Management and Treatment of COVID-19

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Contents

Background

One of the goals of the CDC supplemental award (CDC Award Number: 5NU50CK000586-02-00) is to support academic medical centers (AMCs) and health systems using peer-mentored care to enable primary care providers (PCPs) to manage COVID-19 in their patients. The AAMC (Association of American Medical Colleges) gathered insights on AMCs' approaches to supporting PCPs in providing COVID-19 care through a combination of webinars, facilitated discussions, and surveys of AMCs participating in Project CORE (Coordinating Optimal Referral Experiences) to better understand how AMCs are using eConsults and other tools and practices (e.g., Project ECHO) to support COVID-19-related care. The AAMC also collected materials and resources (e.g., sample templates and de-identified eConsult exchanges) to demonstrate the various ways organizations have leveraged and optimized eConsults during the pandemic. The AAMC has compiled this information as a resource and reference to support the primary care management of COVID-19. Because of the rapidly evolving nature of the pandemic, some of this information may not reflect the latest practice.

Based on a model initially developed and piloted at the University of California, San Francisco, the AAMC launched Project CORE in 2014 to help AMCs improve the referral experience for both clinicians and patients. Through Project CORE, the AAMC has partnered with more than 40 AMCs, children's hospitals, and health care organizations to successfully implement eConsults and enhanced referrals, tools built into the electronic health record (EHR). Through this innovative model, CORE AMCs are improving efficiency and effectiveness at the interface between primary care and specialty care, thereby improving quality of care and access in a patient-centered way.

eConsult Tools for COVID-19-Related Care

During the pandemic, many organizations rapidly developed and deployed a robust infrastructure to support providers in the management and prevention of COVID-19. Examples of these efforts include weekly town hall meetings with COVID-19 updates, reference documents accessible in the EHR, vaccine question hotlines, and clinical pathways for ordering therapeutics.

> "I see the greatest potential in focusing on post-acute COVID and potentially considering opportunities not only for management support but also potentially for surveillance."
> **— Project CORE Primary Care Physician Lead**

Across a sample of CORE AMCs, PCPs have consistently used eConsults to question specialists about COVID-19 care. These eConsult questions have most commonly been related to COVID-19 vaccines and post-acute COVID-19 care. The most-utilized specialties across CORE and other eConsult programs include allergy and immunology, dermatology, hematology, infectious disease, neurology, pulmonology, and cardiology.

As a result of this demand, some organizations have also developed and deployed strategies and tools to optimize their eConsult program to meet new needs that have arisen during the pandemic. One Project CORE team's Primary Care Physician Lead noted their institution was supporting COVID-19 management and prevention through continuously updated recommendations for COVID-19 vaccines and therapeutics (including pathways for therapeutics) and continuously updated information sheets accessible via EHR.

COVID-19-Related eConsult Templates

In the Project CORE model, condition-specific templates built into the EHR for eConsult orders facilitate and improve communication between a PCP and specialist by creating a structured framework for this exchange. These condition-specific templates prompt the PCP to ask a clear clinical question, include clinical guidance, and identify the need for any clinical information (e.g., labs or tests) that allow the specialist to respond effectively. AMCs typically create several condition-specific templates for each specialty, informed by feedback from primary and specialty care providers. Some Project CORE teams have relied on their existing condition-specific templates (e.g., other/unspecified template) to address clinical questions related to COVID-19. Teams opting for this approach have cited the challenges of creating new templates given the rapidly evolving clinical guidance on COVID-19 care. Others, however, have opted to build condition-specific eConsult templates for COVID-19 vaccine-related questions and post-acute COVID-19 management.

Below are samples of vaccine-related and post-acute COVID-19 eConsult templates from various Project CORE organizations.

Example 1: Pediatric Allergy — COVID-19 Vaccine Allergy Concern

Instructions For Ordering Providers:

If you know the following information, include it with your question:

- Specific symptoms if reacted to first or second dose of vaccine
- Which brand of vaccine?
- If concerned about receiving vaccine due to multiple other allergies, please list
- specific patient/family concerns and/or clinical question(s)

My clinical question: ***

Example 2: Allergy — COVID-19 Vaccine Reaction

Questions within Order

Medical Condition [COVID-19 Vaccine Reaction Question] (pre-selected)

Consent Acknowledgement [I acknowledge that the patient has verbally consented to this eConsult placed on their behalf]

In comments section

Symptoms/reasons not appropriate for eConsult:

1. Refer in-person to Allergy/Immunology for evaluation of known polyethylene glycol (PEG) allergy.

In your clinical question comment on the following information, if applicable:

1. If the patient had a reaction to the first dose of the COVID-19 vaccine, please describes the specific symptoms, onset after vaccine, duration, any relevant lab work, and what medical intervention was required for management.
2. If the patient has not received their first dose of the COVID-19 vaccine, what is the specific concern?

Please enter your clinical question and include any relevant symptoms or history. If there are tests or images that need review, please indicate where to find them in the chart: ***

Example 3: Pulmonology Post-COVID-19

Include the following:

- Pulmonary function tests, Chest X-ray, date of diagnosis, clinical course, pre-COVID functional status/ O2 need if any, current symptoms

My Clinical Question:

Example 4: Long COVID-19 (LC) Clinic — Long COVID-19

Questions within Order

Please acknowledge that each following questionnaire has been completed in Documentation Flowsheets (Check the box for each questionnaire to indicate it has been completed):

- Modified Medical Research Council Dyspnea Scale (MMRC; single question on fourth line)
- Modified Fatigue Impact Scale
- General Anxiety Screening – 7 (GAD-7)
- Patient Health Questionnaire (PHQ-9)

Consent Acknowledgement [I acknowledge that the patient has verbally consented to this eConsult placed on their behalf]

Information to include in Comment Section

Eligibility Criteria for LC e-consult:

1. New complications or refractory symptoms related to SARS-CoV-2 illness.
2. The patient is at least 28 days from the start of SARS-CoV-2 illness
3. Four questionnaires must be completed in Documentation Flowsheets.

In your clinical question comment on the following information, if applicable:

1. Summarize the reason for the e-consult (Eg, diagnostic clarification, therapeutic recommendation, other)
2. Include a description of the key symptom(s) and/or complication(s) and any evaluations completed to date.

In comments section at the bottom,

Please enter your clinical question after reviewing medical condition decision support: ***

Multispecialty Pools

Throughout the pandemic, Project CORE AMCs have seen an increase in volume of eConsults related to post-acute COVID-19. Post-acute COVID-19 conditions provide unique challenges given the wide range of symptoms and clinical findings that can occur in patients with varying degrees of illness. In addition, post-acute COVID-19 can involve multiorgan systems and the pathogenesis and potential interventions are largely unknown.

In response to the growing demand for post-acute COVID-19 care, some AMCs created multidisciplinary post-acute COVID-19 clinics to provide comprehensive and coordinated care for patients experiencing heterogenous symptoms and clinical findings. At some AMCs, this model was replicated within the eConsult program by creating a multispecialty eConsult pool to provide a single place for PCPs to route their clinical questions for specialists about patients who may be experiencing a constellation of symptoms from post-acute COVID-19. This is an alternative to the typical Project CORE approach of separate eConsultants and condition-specific eConsult templates for each specialty (e.g., only cardiologists are serving as eConsultants and responding to cardiology eConsults). Examples of specialties that participated in these multidisciplinary pools include pulmonology, neurology, cardiology, ENT, psychiatry, and rehabilitation medicine. In some cases, the ordering provider would indicate which specialty would be most appropriate within the eConsult order, whereas in other models, the specialists coordinate among themselves to identify who would be the most appropriate eConsultant.

Sample COVID-19 eConsult Exchanges

The AAMC gathered real examples of eConsult exchanges between PCPs and specialists, which demonstrate the application of eConsults to support the care of patients related to COVID-19. Most eConsults dealt with vaccine-related questions and post-acute COVID-19 care. A sample of these examples is featured below and additional examples can be found on *Vaccine Voices*. These cases were edited for clarity, brevity, and patient and family privacy. Given the evolving recommendations and guidance on COVID-19 care, these cases should not be considered complete or definitive and may not reflect the most up-to-date guidance.

COVID-19 Vaccine-Related eConsult No. 1

eConsult Clinical Question: My patient received the Pfizer COVID-19 vaccine. Three weeks later, she presented to emergency department (ED) for evaluation of squeezing chest pain and shortness of breath that developed and then awoke her from sleep two days prior. Pain was worse with deep breathes, lying flat, and leaning forward and improved with rest and ibuprofen.

She had a negative D-dimer in the ED and her echocardiogram was unremarkable. The ED diagnosed her with pericarditis and told her to follow up with PCP about when and whether to receive second shot. **Would you recommend the second shot, and if so, would you consider having her monitored for extra time?**

eConsult Response:

1. Recommendations: Hold off on second dose until the symptoms of pericarditis have resolved. Would not recommend pretreating with nonsteroidal anti-inflammatory drugs (NSAIDs), but rather treat as needed. Would like to see if the symptoms are reproducible because the COVID-19 vaccine is probably going to be a routine part of health care going forward. Wait 30 minutes post-injection of second dose. Have NSAIDs available as needed. There are case reports of myocarditis/pericarditis post-COVID vaccine administration, but this is not a contraindication for the COVID vaccine. The bigger question is whether the vaccine and acute event of pericarditis are related. While there is limited data on incidence of pericarditis, it has been reported in up to 5% of patients admitted to the ED with nonischemic chest pain. If symptoms are reproducible with the second dose of the vaccine, then we can establish such an association for this patient. If that is the case, we would recommend a different COVID vaccine in the future.
2. Contingency plan: Receive a different brand of COVID vaccine for second dose.

COVID-19 Vaccine-Related eConsult No. 2

eConsult Clinical Question: A 62-year-old female patient had a severe anaphylactic reaction to the Pfizer COVID-19 vaccine. **Can she get a booster shot of the Johnson & Johnson variety (no polyethylene glycol [PEG] in it) or should she wait for the Covavax?**

eConsult Response:

1. Restatement of the question: Thank you for asking about this 62-year-old woman who had a severe anaphylactic reaction to the Pfizer COVID vaccine. You have asked whether it would be safe or advisable for her to be boosted with a different vaccine that does not contain polyethylene glycol.
2. Recommendations: I suggest referring this patient to our allergy team for further assessment and discussion.
3. Rationale and/or evidence for recommendation: In most cases, I think the proposed plan that you have suggested would be exactly the way to go. Specifically, transitioning from an mRNA vaccine to the Johnson & Johnson/Janssen vaccine. This is for the reason that you have highlighted: Polyethylene glycol is an ingredient in the mRNA vaccines, which is not present in the adenovirus DNA-based vaccine made by Janssen. Although I do not usually think about cross-reactivity between polyethylene glycol and polysorbate, in this case, I notice a very long list of allergies, 18 in total. I have reviewed each of them; many seem not to be true allergies but rather intolerances. But, on a number of occasions, there are reports of hives and shortness of breath. Therefore, in the context of this particular patient, I do think a conversation with a board-certified allergist makes sense.
4. Contingency plan: I am happy to discuss this recommendation; please call me directly with any questions.

Post-Acute COVID-19 Care eConsult No. 1

eConsult Clinical Question: A 43-year-old patient reports that she has dizziness with head movement and with walking and standing. She states that she feels that the room is spinning. She states that she has had this since having COVID-19 but that it is getting worse. She is uninsured. I recommended physical therapy. Previously, she had been self-adjusting her blood pressure (BP) medicine and has some anxiety and depression. **Any other thoughts or recommendations for the treatment of her dizziness?**

eConsult Response: If the dizziness truly involves circular spinning sensations, then vestibular (balance) testing would be a useful next step. If the "spinning" sensation is more of an unsteadiness or presyncope/fainting sensation, then I would agree with continuing the focus on BP meds and/or anxiety and depression treatment.

Vestibular testing can be a challenge for uninsured patients due to the expense of the testing process, which usually involves several hours of different tests (wobble platform, spinning chair, etc.). Lower-cost alternatives, if the full vestibular testing protocol is too expensive while uninsured, would include a physical therapy balance assessment. Regarding COVID-19, many patients have nonspecific neurologic symptoms including hearing loss/tinnitus, loss of smell, cognitive dysfunction, etc., but there haven't been many official reports of balance-specific symptoms, so the standard balance assessments are still the current standard of care, without any changes unique to COVID-19.

Post-Acute COVID-19 Care eConsult No. 2

eConsult Clinical Question: Patient presents with prior COVID-19 diagnosis. She still has a decreased sense of smell. **Are there any recommendations to help with this or should she be recommended for further evaluation?**

eConsult Response: If the loss of sense of smell (hyposmia) occurred with rapid or immediate onset during a test-confirmed COVID-19 infection, then additional testing is not required. If the onset is less certain, occurring gradually over weeks or months, or occurring weeks after the known COVID-19 infection, then a brain magnetic resonance imaging (MRI) with and without contrast is appropriate to help evaluate for rare contributors such as anterior skull base tumors.

As for treatment options, the two best treatments include moisturizing sprays (nasal saline sprays/rinses) and Smell Retraining Therapy (SRT). SRT has been used for many years but has become more common during the COVID-19 pandemic. It consists of using vials of known chemicals (usually essential oils from a health food store) and sniffing them a few times per day for several months. This helps to reinforce the neurologic pathways that help people identify common smells, odors, and tastes. The most common categories include rose, lemon, clove, and eucalyptus oils. Detailed information on SRT is available from most otolaryngology/ENT clinics, or online at abscent.org or at fifthsense.org.uk.

For timeline or prognosis, hyposmia recovery after COVID-19 remains highly variable. Most patients recover either completely or nearly completely. This often occurs within the first one to three months, but many people see slow gradual recovery over six to 12 months. Spontaneous recovery after 12 months is possible but rare. A small but significant percentage of patients will not ever fully recover. There are not any medications currently known to improve or enhance this recovery; however, many different medications are being studied (but no clear winners thus far). Patients with diminished sense of smell need to be cautious about closely checking the expiration dates on foods, especially meat or dairy products, and need to strongly consider installing natural gas leak detectors (similar to smoke detectors) as they might not notice the smell of a gas leak if it were to occur.

Perspectives on eConsults as an Alternative to In-Person Care for COVID-19

Project CORE AMCs have found eConsults to be an effective alternative to in-person referrals for questions about COVID-19 vaccines and post-acute COVID-19 management but less effective for COVID-19 therapeutics and acute COVID-19 management due to the clinical urgency of those matters. Feedback from the Project CORE teams did identify significant opportunities in post-acute COVID-19 management given the increasing demand, growing access challenges for this patient population, and potential benefit in early management of post-acute COVID-19 conditions.

"Vaccine and therapeutic decisions related to COVID generally come up in real time so may not be a great fit for e-consults since you need to make a decision in the moment. However, I imagine they would be very helpful for long covid management."
— Project CORE Primary Care Physician Lead

Other Clinical Innovations and Tools to Promote Management and Treatment of COVID-19

In addition to eConsults, Project CORE AMCs have leveraged other clinical innovations and tools to promote management and treatment of COVID-19.

Enhanced Referrals

Like eConsults, enhanced referrals are tools built within the EHR. The existing referral order is "enhanced" with a condition-specific template that provides clinical guidance and decision support to the ordering provider and prompts the ordering provider to ask a clear clinical question and indicate their preference for co-management. Some AMCs have developed enhanced referrals for their multidisciplinary COVID-19 clinics to improve the information exchange between PCPs and specialists and provide decision support and clinical guidance to assist providers in their decision to refer. One AMC has built an "enhanced referral lite," which prompts the ordering provider to order additional required labs, which then goes to the multidisciplinary COVID-19 clinic. The COVID-19 clinic then uses this referral to triage.

E-visits

Providers and patients have increasingly relied upon e-visits since the start of the COVID-19 pandemic. Through an e-visit, providers communicate with patients electronically over a HIPAA-compliant online connection. This tool has been integral in facilitating patient care and overcoming barriers to in-person care (e.g., geography, transportation, COVID-19 infection). Some CORE AMCs have also developed templates and standardized questionnaires for e-visits for COVID-19 patients. At one CORE site, the e-visit is initiated by the provider, then the patient answers questions using an in-depth questionnaire. At another CORE site, e-visits are initiated by the patient. A COVID-19 e-visit can also incorporate standard order decision-making that helps with oral COVID-19 treatment prescribing by building patient eligibility and contraindications into treatment.

Project ECHO and COVID-19

The Project ECHO (Extension for Community Healthcare Outcomes) model uses technology to connect providers over video and teleconference to engage in case-based learning and the sharing of best practices for various subject areas. Since the start of the pandemic, many Project CORE AMCs have leveraged Project ECHO to educate providers about COVID-19 care. The Oregon Health & Science University team launched weekly ECHO sessions as part of a rapidly deployed series (and later published journal articles on this deployment and analysis of chat box use during their ECHO series), and others held monthly sessions. These Project ECHO sessions are free and providers also typically receive continuing education credits for their participation. The ECHO model allows AMCs to further extend peer-to-peer learning to rural areas and to those that provide direct patient care. Many ECHO sessions affiliated with CORE Network AMCs have focused on post-acute COVID-19 care, but sessions have also covered topics such as PPE, testing, telehealth, advanced care planning, nursing home care, therapeutics, and provider burden. The Family Health Centers of San Diego, the ECHO Institute, University of Washington, and University of Colorado have collaborated to provide a CDC-funded monthly webinar-style ECHO series to rapidly disseminate post-acute sequelae of SARS-COV-2 infection (PASC) and myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) findings and emerging best practices. Project ECHO was founded by Dr. Sanjeev Arora in 2003 at the University of New Mexico. View the ECHO webpage to learn more about ECHO's history, success stories, partnerships, and programming.

Conclusion

The COVID-19 pandemic prompted many organizations to rapidly develop and deploy solutions to support providers in the management and prevention of COVID-19. Teams have bolstered their own support infrastructures with weekly town halls with COVID-19 updates, reference documents accessible in the EHR, vaccine question hotlines, and clinical pathways for ordering therapeutics. Most CORE Network AMCs observed PCPs utilizing eConsults as a tool for specialty input on COVID-19 care. Some of these AMCs have also further developed resources and tools such as condition-specific templates and multispecialty eConsultant pools to further augment the eConsult tool. Other teams have developed enhanced referrals or e-visits to improve COVID-19 management. CORE teams have also leveraged Project ECHO infrastructure and technology to connect providers over video conference and share guidance and recommendations on COVID-19 care. Project CORE teams continue to use these multipronged strategies to enable and support their providers in COVID-19 care as the pandemic continues to evolve.

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