Clinical Decision Support (CDS) Connect Work Group (WG)

Meeting Summary

February 17, 2022

3:00 – 4:00 pm ET

Attendees: 37 people, including 6 phone dial-ins

Organization	Attendees
AHRQ Sponsors	Mario Teran, Roland Gamache (2)
WG Members	Alex Goel, Alison Kemp, Andrey Soares, Barry Blumenfeld, Danny van Leeuwen, Deepika Sharma, Emre Sezgin, Jerry Osheroff, Ken Kawamoto, Kerri Patterson, Lisa Lang, Maria Michaels, Maya Gerstein, Mustafa Ozkaynak, Neeraj Ojha, Preston Lee, Randolph Barrows, Rina Dhopeshwarkar, Ryan Mullins, Sandra Zelman Lewis, Tien Thai (21)
MITRE CDS Connect Members	Allie Rabinowitz, Chris Mosel, Julia Afeltra, Lacy Fabian, Michelle Lenox, Rob Truhn, Sam Carillo (6)
Presenter	Katherine Kim (1)

MEETING OBJECTIVES

- Welcome; brief review of meeting objectives and agenda
- ACTIVATE Project Overview
- Discussion: Co-Design for CDS Development and Implementation
- What's New with CDS Connect
- Close

ACTION ITEMS

- None

MEETING SUMMARY

Following roll call and review of agenda, Dr. Katherine Kim (MITRE) presented her work on developing the ACTIVATE platform, highlighting the importance of co-design with community members. The meeting concluded with a brief overview of updates to the CDS Connect website.

Welcome

MITRE started the meeting by welcoming participants and reviewing the names of WG members participating in the call. Maria Michaels then reviewed the agenda and facilitated the rest of the discussion.

ACTIVATE Project Overview

Dr. Katherine Kim presented an overview of the Accountability, Coordination, and Telehealth In the Valley to Achieve Transformation and Equity (ACTIVATE) Project.

This work is based in the California Central Valley, a primarily rural area experiencing some of the worst health disparities in the state and county. Many residents of the Valley lack access to basic healthcare; and service providers in the area have limited reach and coverage. As is the case in many underserved rural communities, the Valley experiences disparities in digital connectivity. ACTIVATE aims to work with communities to understand their needs and address this technological healthcare gap.

Dr. Kim reviewed the digital health barriers faced by individuals in rural and underserved communities, including the infrastructure for connectivity, the presence of computing devices, access to remote monitoring devices, and residents' digital experience and skills. Furthermore, these communities are impaired by challenges within the healthcare setting; clinics may not have the infrastructure or sustainable funding to maintain the technologies and equipment. Dr. Kim noted that, even if technological capabilities were available and maintained, the community health center staff and providers may not have the experience or skills to fully employ the resources.

ACTIVATE began during the COVID-19 pandemic to ensure the continued delivery of healthcare for underserved communities as medical consultations and treatment shifted toward telehealth and remote-delivery models. ACTIVATE's vision is to provide an equitable digital health platform that equips the individual and their healthcare team with tools for health and wellbeing. To accomplish this goal, ACTIVATE co-designed digital healthcare solutions to leverage technologies and remove barriers to their impactful use in effectively treating underserved communities.

Dr. Kim reviewed several frameworks and methods for participatory research to engage stakeholders in identifying problems and designing solutions. In this context, Dr. Kim views ACTIVATE as a participatory design framework with embedded co-design and contextual inquiry methods, establishing a democratic process of engaging stakeholders in identifying problems and designing solutions with qualitative methods to elicit an improved understanding of the lives and situations of target participants.

In the preliminary planning of ACTIVATE, the team engaged members of the community to determine the initial perspectives important to community members. These activities highlighted the theme that in-person contact with providers should not be excluded; healthcare delivery design should prioritize digital health technology facilitating interactions in such a way that the technology itself should not create a barrier or act as a "gatekeeper" to when or how individuals might see their provider.

The ACTIVATE team also learned from community members' prior experience using medical technology. Dr. Kim highlighted one woman's experience. At a doctor's recommendation, she had purchased a blood pressure monitoring device. Although she used the device to the best of her ability, she received no benefit from her efforts; she misunderstood the purpose and correct usage of the device. Furthermore, she did not know how to interpret the information the device produced, so she could take no action on the results. The ACTIVATE team began by exploring her situation, beginning at the point of purchase, to understand what went wrong with her experience. The participant was asked to walk through every step of putting the device into use, and to document the steps where she felt uncertain on how to proceed. Through this exercise, the team uncovered gaps in the process: the instructions provided with the device were written in English when the individual only understood Spanish; the instructions could be located in Spanish on the Internet, but the font was too small to be legible when printed. This activity uncovered needed improvements in the device's digital-literacy design that would help this individual and similar patients alike.

Based on this and other feedback, ACTIVATE developed solutions to support the adoption of in-home technology and use of personal medical devices. ACTIVATE involves multi-approach support with a community health center consultation, patient consultation either in the clinic or at home, coaching to help the patient set and accomplish health goals, and workforce development and training for digital health. The resultant model for coordinating person-centered digital health pathways care is a digital first—not digital only—tactic respecting the first lesson ACTIVATE learned: that technology should not be a barrier or gatekeeper to healthcare.

ACTIVATE integrated six technology devices into the platform and is working to add more based on insurance coverage as reported by local providers. The ACTIVATE platform supports an app that can register the devices to the individual and their health center. The app allows the patient, provider, and health coach alike to view the patient's measurements in real time along with aggregate reports, thresholds, and trends. The app is designed to integrate with what the current systems and infrastructures are using, including a variety of electronic health records (EHR), virtual-visit platforms, registries, and clinical data warehouses.

ACTIVATE includes a twelve-week program of health coaching, remote patient-data monitoring, and huddles with teamlets of healthcare advisors. After three and six months of these activities, the ACTIVATE team evaluates the patient's outcomes and decides whether to continue the patient's active program, or instead to move the patient to a less-intensive maintenance phase.

The ACTIVATE feasibility pilot enrolled twelve Spanish- or English-speaking adults with Type 2 diabetes and hypertension. After three months, participants reported an average 2.4-point reduction in hemoglobin A1C, 10-point systolic blood pressure reduction, and 8-point diastolic blood pressure reduction. These results are more impactful than what is expected with typical medication-only interventions. The feasibility pilot also conducted interviews with seven patients, all of whom reported increased knowledge of their health conditions and self-efficacy, feeling healthier, seeing improvements in their blood pressure and/or blood glucose levels, interest in continuing the

program, and recommending the program to family and friends. The participants appreciated the convenience of a virtual program motivating them to implement healthier habits into daily routines. They felt comfort in knowing a medical professional was reviewing their data, and they also reported positive experiences with health coaches. The participants expressed a desire for more health education, especially regarding nutrition and physical activity.

ACTIVATE has since expanded, enrolling approximately 80 patients between July and December 2021. Three- and six-month analyses of these activities are in progress.

The follow-up phases of ACTIVATE will concentrate on expanding the target population to include Type 1 diabetes and some components of mental health.

Discussion

A WG member asked about plans to conduct a program cost-benefit review. Although Dr. Kim could put a cost estimate on the technological devices and connectivity per patient, she noted difficulty in determining the cost of the infrastructure at participating health centers. Anecdotal evidence suggests that the format of ACTIVATE's healthcare delivery is allowing providers to see more patients, both by the convenience of remote consultation and in increased efficiency (the health coach assumes more of the decision-making consultation with the patient). A WG member postulated that insurance reimbursements may be able to sustain this program and cover the cost of technology to make this an ongoing model.

A WG member asked if the concept for the project was informed by work in low- and middle-income countries to expand the capabilities of providers to reach more patients by passing the "burden of care" from the provider to a community health worker (or, in this case, a health coach). Dr. Kim responded that the work was informed by prior work in the United States on health coaching using a teamlet model. Results have demonstrated the importance of clear delineation and communication among members of these small healthcare teams. ACTIVATE does not aim to shift the work from the provider to the health coach, who is a medical assistant; instead, it hopes to make the best use of both the provider and health coach.

Another WG member asked about plans for scaling the work. Dr. Kim responded this is only the first version of the program; MITRE is developing a version to scale the model to multiple health centers. This second version will incorporate additional features to ensure that the program is customizable, including automating the modeling of health pathways, creating a patient-friendly user interface, supporting additional devices, and integrating directly with EHRs. The team is creating toolkits to capture the team's experience and facilitate a wider adoption of the person-centered digital health pathways care coordination model. A WG member inquired whether the final product will be open source. Although the first version was developed using proprietary foundations (making it unavailable as an open-sourced product), MITRE's second version is intended to be an open-source construct.

What's New with CDS Connect

The MITRE team discussed recently implemented updates and features, as well as those that remain in progress. The Authoring Tool team continues to prepare for migration to a new server environment, while also refactoring the code base for improved maintainability and reusability.

The Pain Management Summary was displaying errors in certain browsers, which has now been addressed and fixed.

The Repository has undergone Drupal 9 security updates. The team is working to address memory issues encountered during Repository searches using the Medical Subject Heading (MeSH) taxonomy, and it also is working to automate notifications to a Repository administrator when an artifact author has requested a review of the artifact. MITRE continues to develop a Repository user guide while server migration work nears completion. Finally, artifact contributors and CDS Connect administrators continue to review new and updated artifacts in the CDS Connect Repository.

Closing