

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY

AHRQ

February 2022 CDS Connect Work Group Call

CDS Connect

Agenda

Schedule	Topic
3:00 – 3:01	Roll Call, Michelle Lenox (MITRE)
3:01 – 3:03	Review of the Agenda, Maria Michaels (CDC)
3:03 – 3:35	ACTIVATE project (Katherine Kim, MITRE)
3:35 – 3:50	Discussion about co-design for CDS development and implementation
3:50 – 3:55	What's New with CDS Connect (MITRE)
3:55 – 4:00	Open Discussion and Close Out, Maria Michaels (CDC) • Open discussion and announcements • Concluding comments, review next steps and adjourn

Objectives

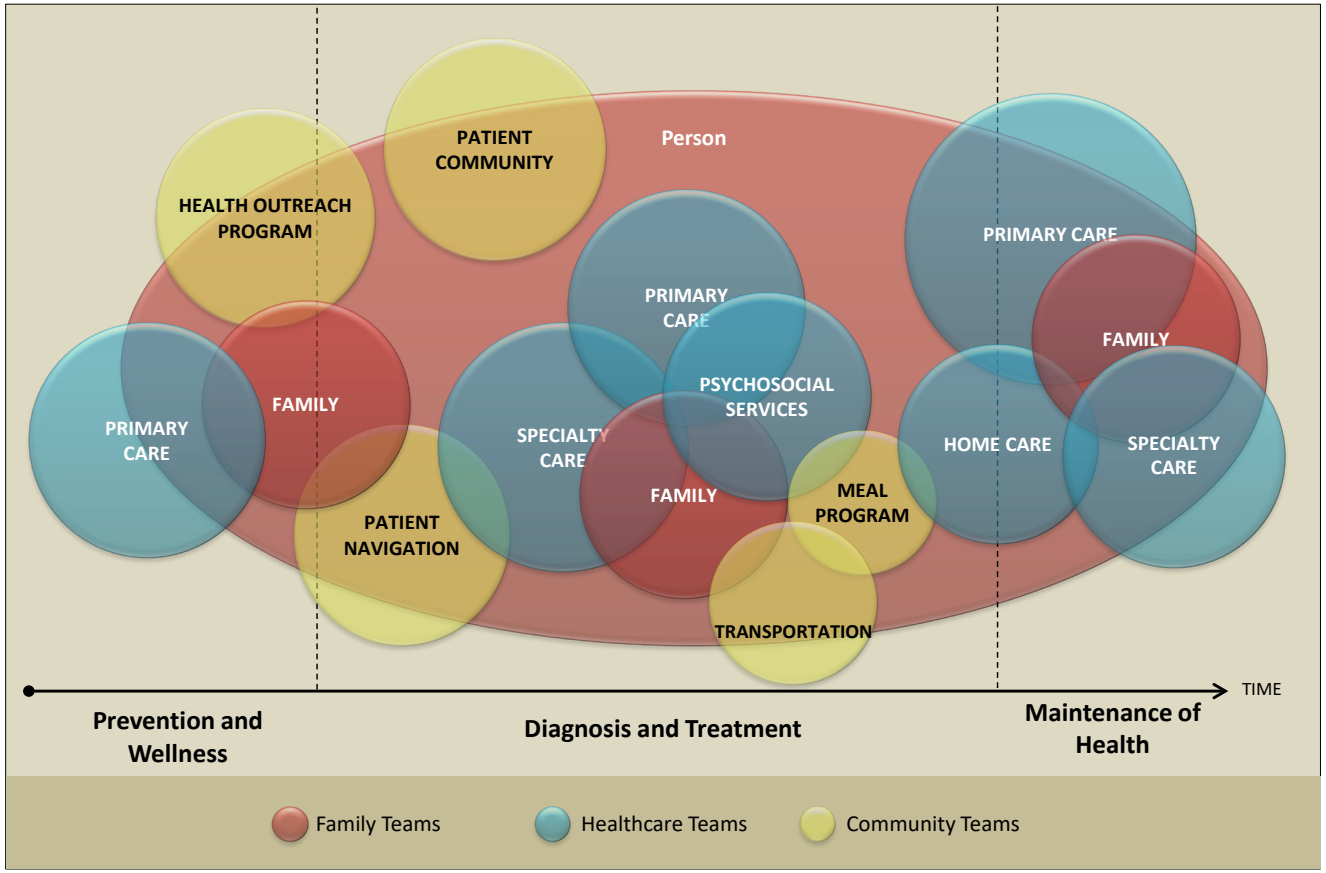
- Share new features and resources available for CDS Connect
- Share co-design principles from ACTIVATE project
- Discuss how co-design principles can inform improvements in patient involvement with CDS development and implementation

ACTIVATE PROJECT OVERVIEW

Katherine Kim, PhD, MPH, MBA, FAMIA
Principal, Consumer Health Informatics

Point of Need for Care Coordination

Definition: “A time and place when health-related conversations occur or health choices and decisions are made…”



Person-Centered Community Wide Care Coordination Framework

K. K. Kim, J. F. Bell, S. C. Reed and R. Whitney. **Coordination at the Point of Need** In: Oncology Informatics, edited by B. W. Hesse, D. K. Ahern and E. Beckjord. Academic Press 2016 DOI https://doi.org/10.1016/B978-0-12-802115-6.00005-7

K. K. Kim, S. Jalil and V. Ngo. **Improving Self-Management and Care Coordination with Person-Generated Health Data and Mobile Health** In: Consumer Informatics and Digital Health: Solutions for Health and Health Care, edited by M. Edmunds, C. Hass and E. Holve. Springer International Publishing. DOI 10.1007/978-3-319-96906-0_12

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Breadth of Digital Health

- Virtual visits via video and telephone
- Remote patient monitoring and wearable devices
  (e.g., glucometer, blood pressure, activity, sleep)
- Mobile health
  (e.g., self-tracking applications, text, secure messaging)
- Patient portals (e.g., lab results, prescriptions, scheduling)
- Telehealth and telemedicine systems
  (e.g., e-consult, store-and-forward)

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Disparities in California Central Valley

Rural [1]

- 8.7% of Rural patients have used telehealth
- 70% of rural consumers say their health system or insurance provider does not offer telehealth
- 0% of consumers that indicate their health as “poor” use telehealth

California Central Valley

- Diverse population: 60% Latino, 28% White, 8% Asian, 4% Black
- Worst air, water, and land pollution in state
- 21%-40% poverty
- 100% population in health professions shortage area

California Connectivity [2]

- California ranks 13th in broadband access
- Since COVID-19, greater attention on broadband/connectivity to low-income families
  - CA Broadband for All Plan
  - Fewer programs targeted at telehealth equipment
  - Telephone visits expanded moderately, but video has not.

1.As Telehealth Technology and Methodologies Mature, Consumer Adoption Emerges As Key Challenge for Providers, JD Power, July 2019
2. Center for Connected Health Policy report for ACTIVATE

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Digital Health Barriers in Rural and Underserved Communities

- Connectivity
- Up to date computing devices
- Access to remote patient monitoring devices
- Resident digital experience and skills
- Clinic staff and providers with digital experience
- Technology and equipment in the clinic
- Programs adapted to culture and setting
- Stable and sustainable funding

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Accountability, Coordination and Telehealth in the Valley to Achieve Transformation and Equity (ACTIVATE)

- Funder's Motivation: To assure that healthcare for underserved communities did not cease during COVID-19 and demonstrate telehealth.
- Vision: An equitable digital health platform for rural and underserved communities that puts the tools for health and wellbeing in the hands of the person and their healthcare team.
- Mission: We co-design and build digital healthcare solutions that take advantage of new technologies and remove barriers to impactful use in underserved communities.
- Goal: To demonstrate ACTIVATE in three California community health centers by 2022 and create a sustainability roadmap by 2023.

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Accountability,
Coordination, and
Telehealth
In the
Valley to
Achieve
Transformation and
Equity

Participatory Approaches

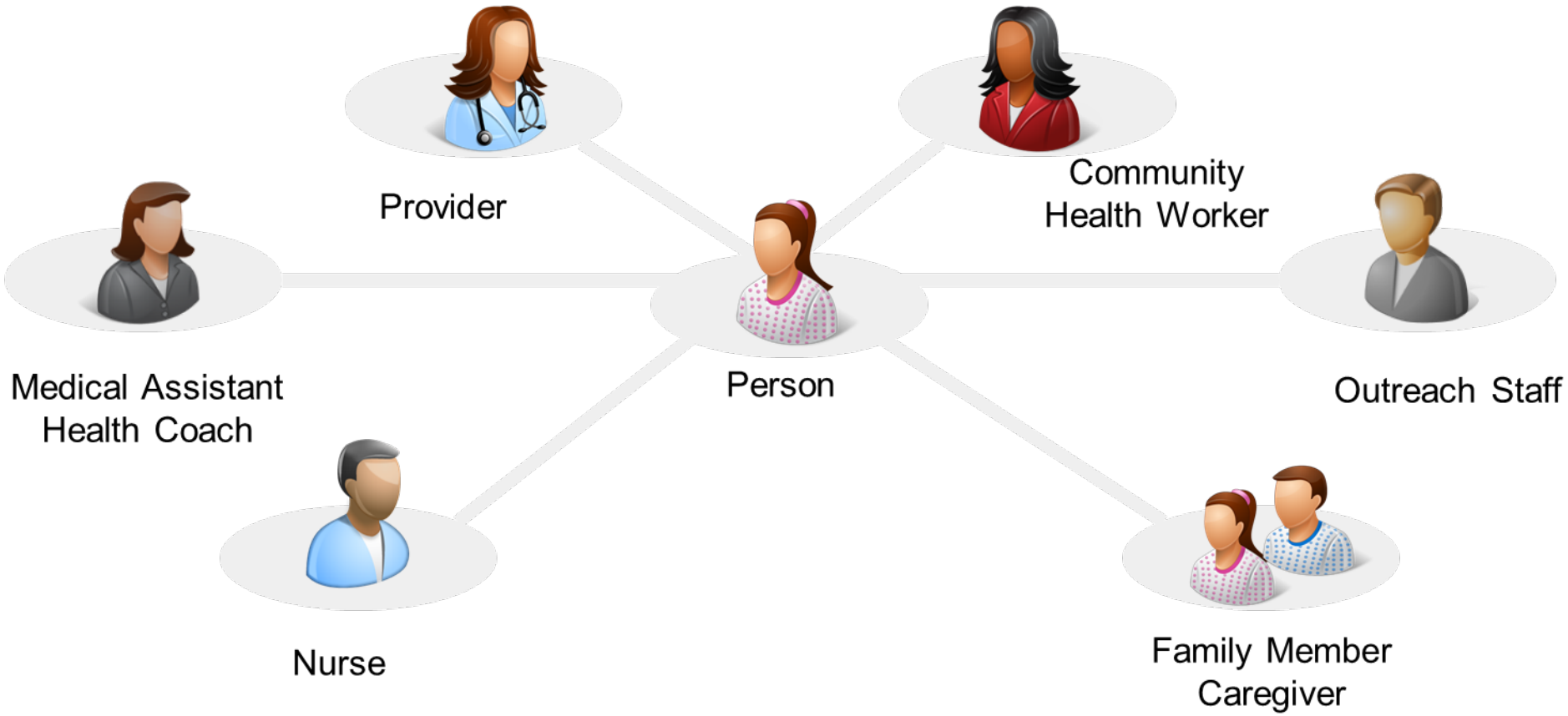
Frameworks:

- Participatory Design – a democratic process of engaging stakeholders in identifying problems and designing solutions
- Design Thinking – a framework that applies diverse approaches to thinking differently
- Contextual Design- designing for life, not tasks
- Community Based Participatory Research – Community drives research priority and contributes in order to act in interest of community
- Citizen Science – professional and community members engage as equals in production of scientific knowledge and action in interest of community

Methods:

- User Centered Design/Human Centered Design – methods to focus on solutions that work for people
- Contextual Inquiry – qualitative methods to elicit understanding of life and situations
- Rapid Prototyping – creativity through rapid-cycle, hands-on builds for solution design
- Co-design/Co-production – design with embedded teams
- Numerous data collection and analysis methods: observation, interview, cultural probes, diaries, visual ethnography, workflow analysis, etc.

Participatory Design Framework with Embedded Co-Design and Contextual Inquiry Methods



CHC team + patient/community co-designers

Early Co-Design Lessons: Keep My Provider Relationship

- Want some in-person contact with my provider
- Provider and staff are part of my community

- ACTIVATE Co-designers

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Early Co-Design Lessons:
Help Me Choose and Use the Right Health Device

- What information will I get from it
- How to share data with my provider
- How and where to wear it
- How to connect
- Cost

- ACTIVATE Co-designers

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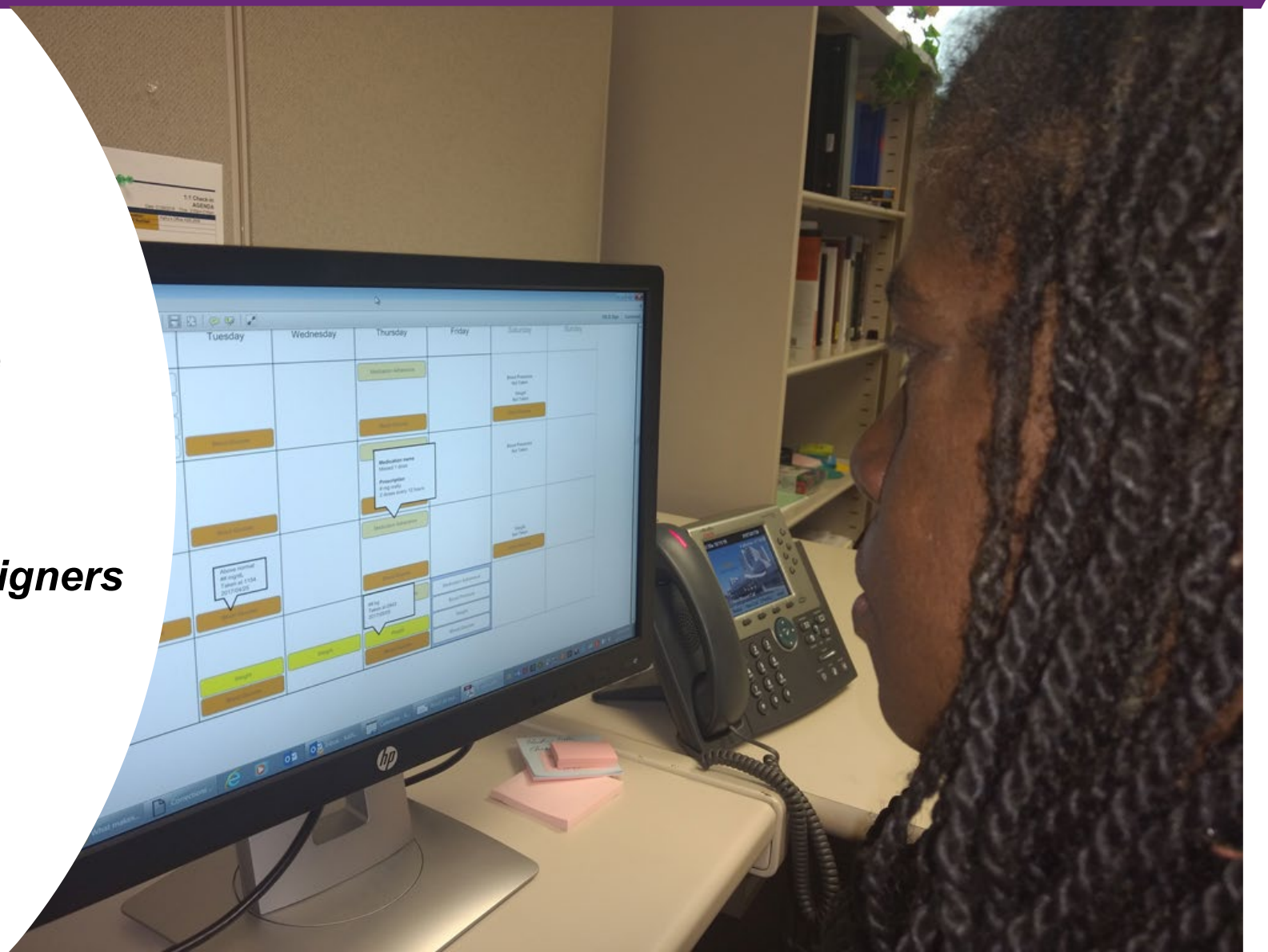
Early Co-Design Lessons: Help Me Use Health Information

- Manage my illness
- Improve health
- Apply in my life
  - Remote monitoring device
  - Electronic health record
  - Health education

- ACTIVATE Co-designers



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ACTIVATE Solutions

Products

- Digital health pathways care model for hypertension and diabetes
- Digital literacy educational tools
- ACTIVATE flexible telehealth platform including remote patient monitoring devices, EHR interface & data
- Readiness and implementation toolkits

Services

- Community Health Center consultation, planning and ACTIVATE platform implementation
- Patient In-home technology adoption support
- Provider health coaching training
- Workforce development and training for digital health/telehealth

Person-Centered Digital Health Pathways Care Coordination Model: Digital First, Not Digital Only

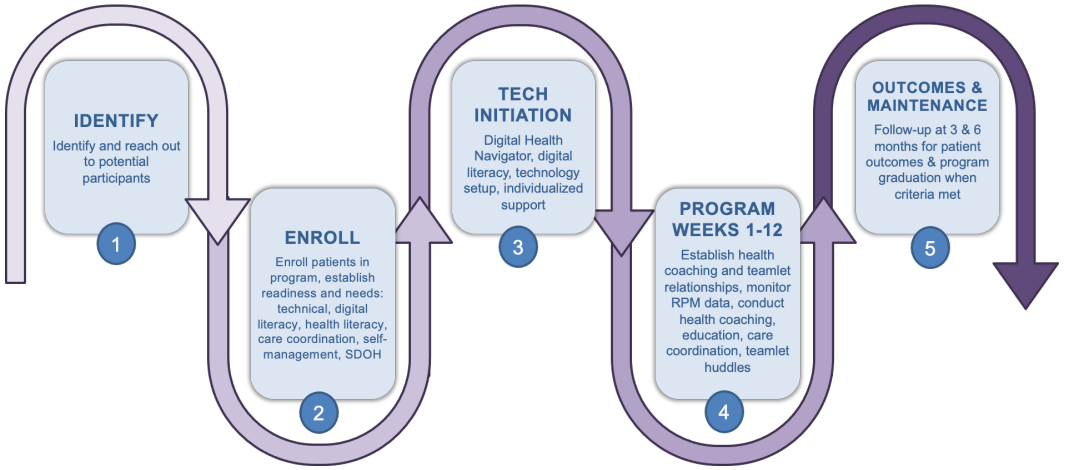
1) Identify
Identify and reach out to potential participants

2) Enroll
Enroll patients in program, establish readiness and needs: technical, digital literacy, health literacy, care coordination, self-management, SDOH

3) Tech Initiation
Digital Health Navigator, digital literacy, technology setup, individualized support

4) Program Weeks 1 – 12
Establish health coaching and teamlet relationships, monitor RPM data, conduct health coaching, education, care coordination, teamlet huddles

5) Outcomes & Maintenance
Follow-up at 3 & 6 months for patient outcomes & program graduation when criteria met



ACTIVATE Platform: A Digital-First Architecture to Bring Data to the Point of Need

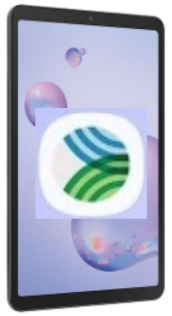
Remote Monitoring

ACTIVATE Mobile gateway

Tablet

ACTIVATE Server

ACTIVATE Dashboard



Patients

Teamlets

BYOD
- ✓ Camera
- ✓ Speaker
- ✓ Microphone

Virtual Visit System

Electronic Health Record System

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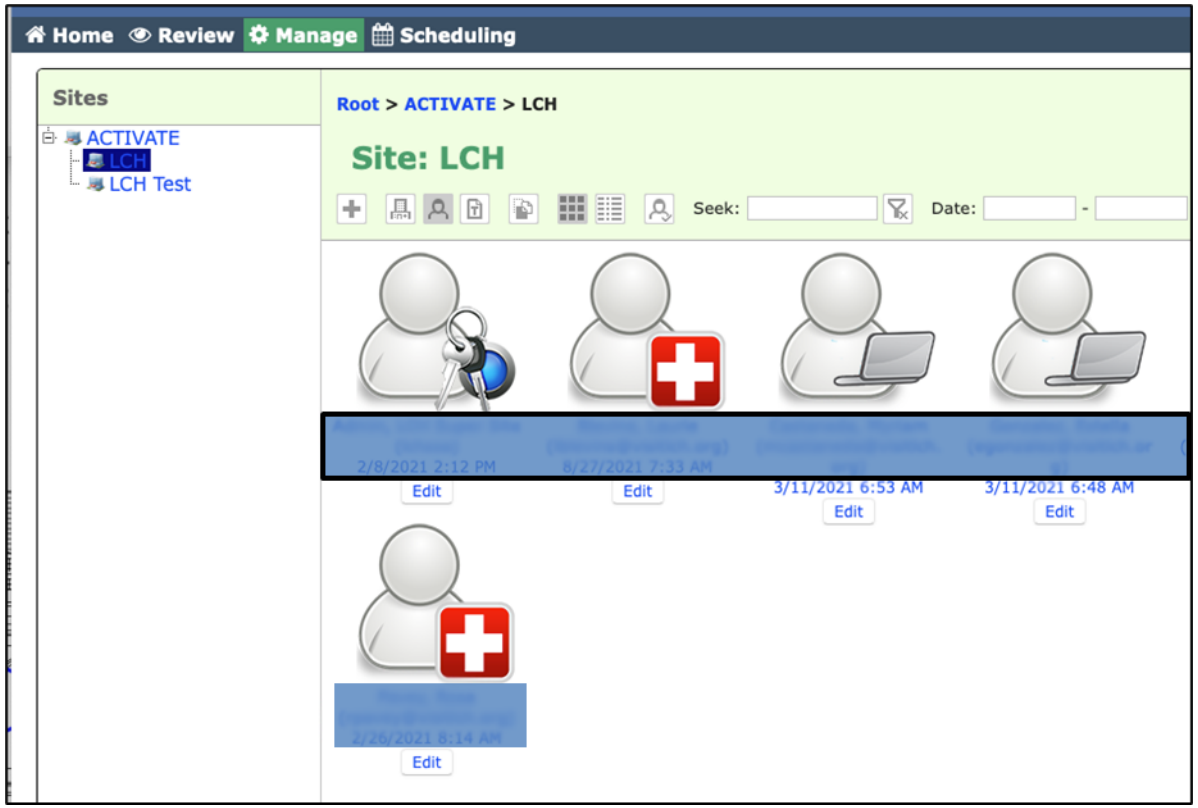
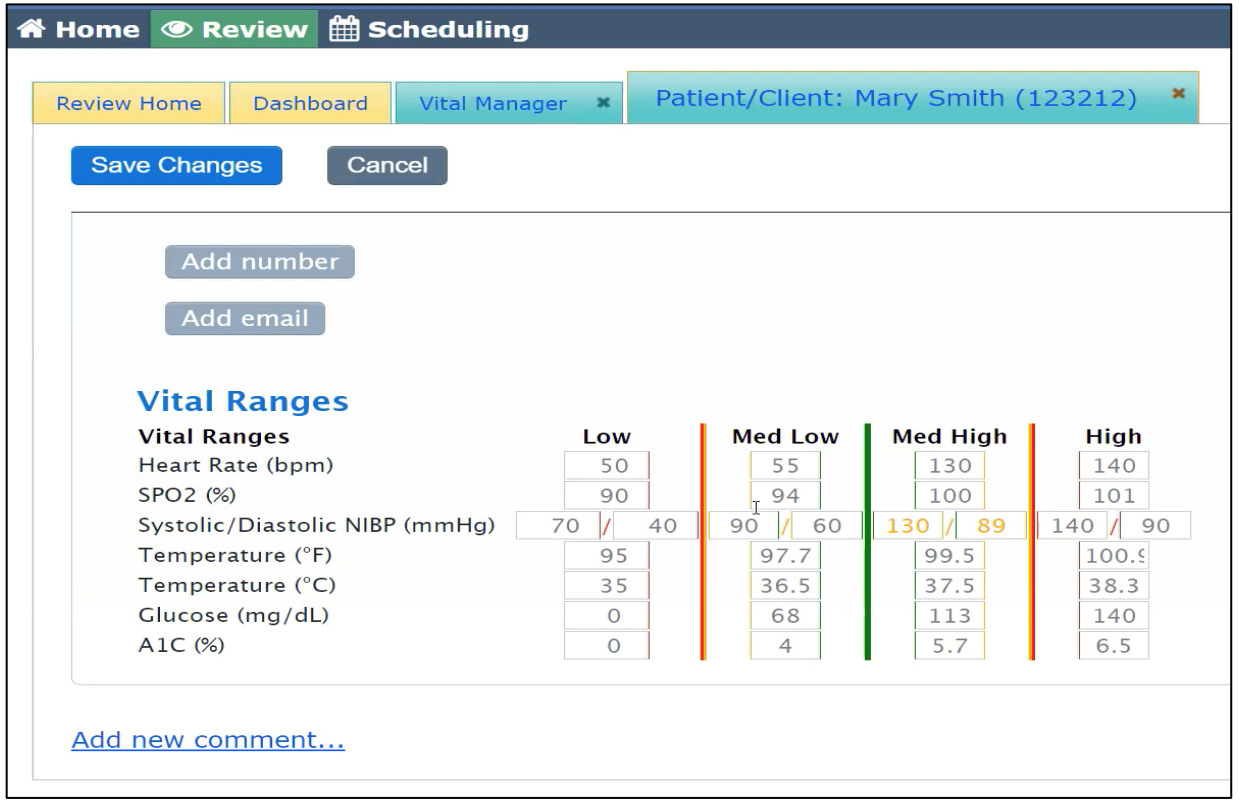
ACTIVATE Platform v.1 for Data at the Point of Need



Panel Management



RPM Ranges and Thresholds

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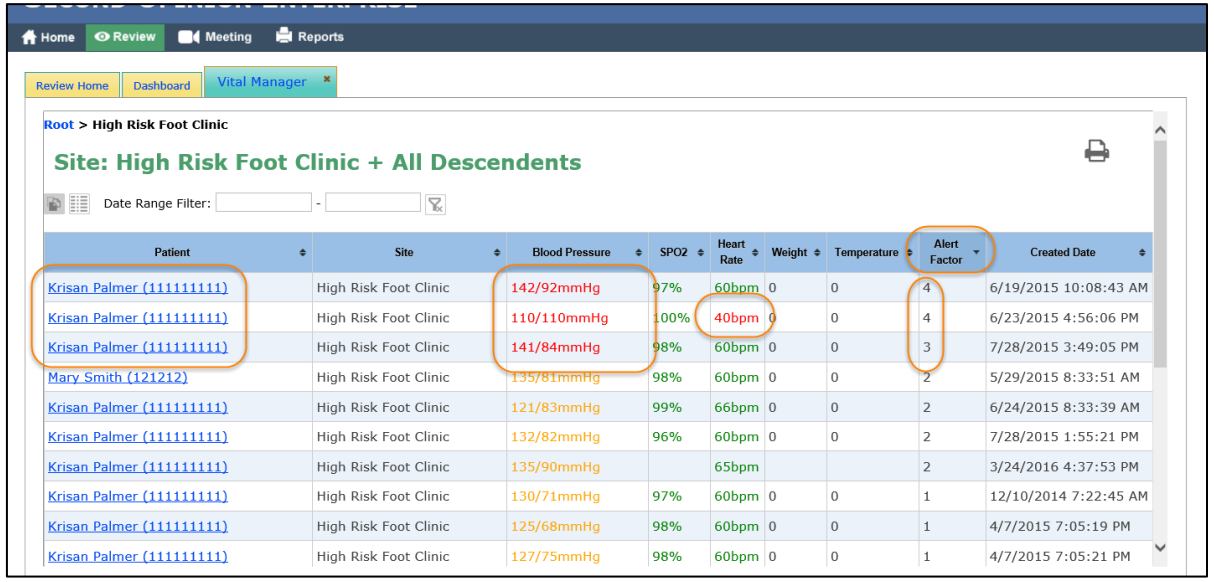
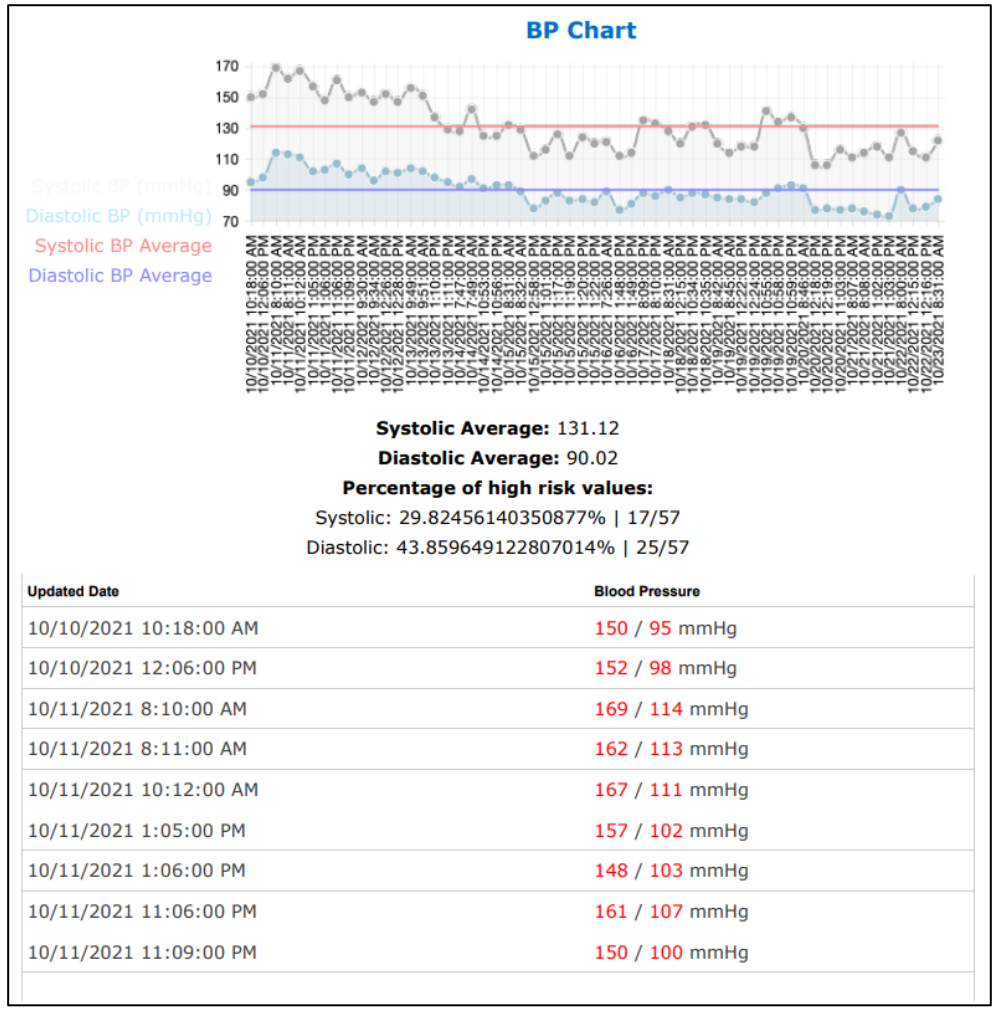
ACTIVATE Platform v.1 for Data at the Point of Need (cont.)



Patient	Site	Blood Pressure	SPO2	Heart Rate	Weight	Temperature	Alert Factor	Created Date
Krisan Palmer (111111111)	High Risk Foot Clinic	142/92mmHg	97%	60bpm	0	0	4	6/19/2015 10:08:43 AM
Krisan Palmer (111111111)	High Risk Foot Clinic	110/110mmHg	100%	40bpm	0	0	4	6/23/2015 4:56:06 PM
Krisan Palmer (111111111)	High Risk Foot Clinic	141/84mmHg	98%	60bpm	0	0	3	7/28/2015 3:49:05 PM
Mary Smith (121212)	High Risk Foot Clinic	135/81mmHg	98%	60bpm	0	0	2	5/29/2015 8:33:51 AM
Krisan Palmer (111111111)	High Risk Foot Clinic	121/83mmHg	99%	66bpm	0	0	2	6/24/2015 8:33:39 AM
Krisan Palmer (111111111)	High Risk Foot Clinic	132/82mmHg	96%	60bpm	0	0	2	7/28/2015 1:55:21 PM
Krisan Palmer (111111111)	High Risk Foot Clinic	135/90mmHg		65bpm			2	3/24/2016 4:37:53 PM
Krisan Palmer (111111111)	High Risk Foot Clinic	130/71mmHg	97%	60bpm	0	0	1	12/10/2014 7:22:45 AM
Krisan Palmer (111111111)	High Risk Foot Clinic	125/68mmHg	98%	60bpm	0	0	1	4/7/2015 7:05:19 PM
Krisan Palmer (111111111)	High Risk Foot Clinic	127/75mmHg	98%	60bpm	0	0	1	4/7/2015 7:05:21 PM

Real-Time Remote Patient Monitoring Dashboard



Updated Date	Blood Pressure
10/10/2021 10:18:00 AM	150 / 95 mmHg
10/10/2021 12:06:00 PM	152 / 98 mmHg
10/11/2021 8:10:00 AM	169 / 114 mmHg
10/11/2021 8:11:00 AM	162 / 113 mmHg
10/11/2021 10:12:00 AM	167 / 111 mmHg
10/11/2021 1:05:00 PM	157 / 102 mmHg
10/11/2021 1:06:00 PM	148 / 103 mmHg
10/11/2021 11:06:00 PM	161 / 107 mmHg
10/11/2021 11:09:00 PM	150 / 100 mmHg

Weekly Summary in Patient's EHR Record

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Feasibility Pilot Outcomes

Eligibility Criteria

- Adults over 18 years
- 2 visits and/or new diagnosis in last year
- Non-insulin dependent diabetes with most recent A1C > 8.0
- Essential hypertension with most recent BP > 140/80
- English or Spanish language

Feasibility pilot

- 12 patients enrolled Apr – Jul 2021
- Hemoglobin A1c for patients with diabetes at 3 months = 2.4-point reduction
- Blood pressure for patients with hypertension at 3 months = 10-point reduction in systolic and 8-point reduction in diastolic

Expansion

- 75 participants enrolled Jul – Dec 2021
- 3-month and 6-month outcomes analysis in progress

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Feasibility Pilot Patient Evaluation Interviews

- All patients interview (n=7) 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
- Liked convenience of a virtual program
- Motivated them to implement healthier habits into their daily routines
- Comfort in knowing a medical professional is seeing their data
- Positive experiences with Rosa and Adolfo
- Want more health education, especially nutrition and physical activity

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Feasibility Pilot Patient Evaluation Interviews (cont.)

"I was very happy to see that someone worries about us and is checking up on the sick people… this program has motivated me a lot because before I was signed up for this program, well, I was checking my blood once a day, or sometimes once a week. Or once or twice a month, so, I didn't have this check-in that I have now. And that's motivated me, every day, every day, to see the numbers I get, and, sometimes I'm very happy, other times I don't know why it shows a bit high..."

Patient 536144

"It has encouraged me to change my lifestyle because prior to ACTIVATE… I check my blood sugar… I didn't know the why behind it… But when I went to the Zoom classes and then I met Adolfo and Rosa, and then they put it all together in perspective to me… it just made a world of a difference for me… It's making me want to do more, it's making me want to get better."

Patient 805014

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Participating Community Health Centers

- Livingston Community Health
- Sonoma Valley Community Health Center
- Community Medical Centers

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Logos used with permission

Acknowledgements

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- Katherine Kim, Co-PI
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- Sergio Aguilar-Gaxiola

Livingston Community Health
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- Glen Villanueva
- Juan Lopez Solorza
- Rheena Pineda
- Johnny O'Brien
- Rosa Pavey
- Adolfo Lopez
- Helidee Govea
- Laurie Blevins
- Ken Hoach
- Nick Sobczak

UC Merced
- Deborah Wiebe
- Rosa Manzo
- Thelma Hurd

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DISCUSSION:
HOW CAN CO-DESIGN INFORM PATIENT INVOLVEMENT WITH CDS DEVELOPMENT AND IMPLEMENTATION?

WHAT'S NEW WITH CDS CONNECT

Sam Carrillo and Chris Moesel, MITRE

Updates and New Features

Authoring Tool

- Preparation for migration to a new server environment
- Ongoing refactoring to improve maintainability and reusability

Pain Management Summary

- Fixed bug that caused intermittent errors in some browsers

Repository

- Drupal 9 security updates
- Ongoing work on memory issues due to MeSH taxonomy
- Creating alerting solutions when artifact author has requested review
- User guide documentation development continues

Artifacts

- Ongoing review of new and updated artifacts contributed to the Repository

Link to CDS Connect: https://cds.ahrq.gov/cdsconnect

ANNOUNCEMENTS, OPEN DISCUSSION, AND CLOSE-OUT

Maria Michaels
Centers for Disease Control and Prevention