

STAKEHOLDER CENTER PROGRESS REPORT

JUNE 2024

CDSiC Stakeholder Community and Outreach Center: Quarterly Report

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Prepared by:

NORC at the University of Chicago
4350 East - West Highway Suite 800
Bethesda, MD 20814



PURPOSE

The Clinical Decision Support Innovation Collaborative (CDSiC) Stakeholder Community and Outreach Center prepares a publicly available quarterly progress report to provide a summary of the status of all projects and activities being conducted within the CDSiC Stakeholder Center's four Workgroups and Planning Committee during the reporting period.

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Introduction

NORC at the University of Chicago (NORC) is pleased to submit the seventh quarterly report to the Agency for Healthcare Research and Quality (AHRQ) on the Clinical Decision Support Innovation Collaborative (CDSiC) Stakeholder Community and Outreach Center (Stakeholder Center). This quarterly report provides a summary of the status of all projects and activities conducted within the CDSiC Stakeholder Center in the second quarter of 2024.

The CDSiC aims to advance the design, development, dissemination, implementation, use, measurement, and evaluation, of evidence-based, shareable, interoperable, and publicly available patient-centered clinical decision support (PC CDS) to improve health outcomes of all patients by creating a proving ground of innovation. Products put forth by the CDSiC will provide innovative solutions that promote the adoption of PC CDS to facilitate whole-person, evidence-based care and improve patients' health and care experience. Ultimately, the CDSiC aims to create a world where patients, caregivers, and clinicians have the information needed to make decisions that improve the health and well-being of all individuals.

Through its Workgroups, the CDSiC Stakeholder Center provides the project's thought leadership—developing products that advance CDS for the broader community, informing the overall work of the CDSiC (in partnership with the CDSiC Operations Center Steering Committee), and offering input on projects the CDSiC Innovation Center develops. Critically, the Stakeholder Center has engaged diverse stakeholders in CDSiC activities, consistent with the mandate established by Section 6301 of the Affordable Care Act for AHRQ to engage and obtain feedback from diverse stakeholders. The Stakeholder Center consists of a Planning Committee and four Workgroups, 1) Measurement and Outcomes, 2) CDS Standards and Regulatory Frameworks, 3) Implementation, Adoption, and Scaling, and 4) Trust and Patient-Centeredness. Together, these Workgroups will produce 11 products by September 2024.

The following sections provide a summary of the status of all projects and activities conducted within the CDSiC Stakeholder Center from April 2024 through June 2024.

Status Report

Planning Committee

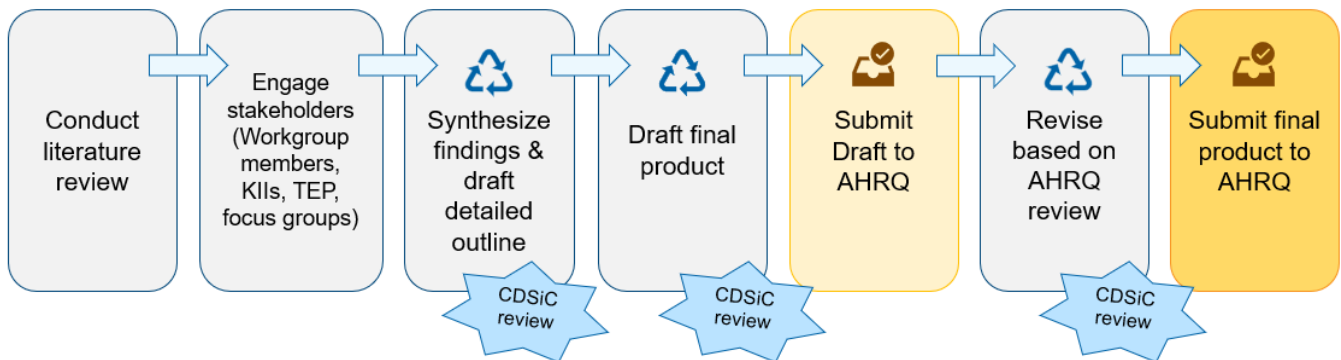
The Stakeholder Center Planning Committee is comprised of the Stakeholder Center Lead, AHRQ project officers, the CDSiC Primary Investigator and Co-Investigators, and Workgroup Co-leads. The Planning Committee did not meet in the second quarter of 2024, in lieu of the 2024 CDSiC Annual Meeting held in May. The Committee will reconvene in September 2024.

Stakeholder Center Workgroups

Across the four Workgroups, the Stakeholder Center is producing 11 products that advance the CDS field in 2024. The products vary in terms of the expected length of time to complete based on scope, falling into one of three levels. This year, the Workgroups will produce Level 2 and Level 3 products. Level 2 projects involve a medium amount of effort. Level 3 projects are shorter-term activities. Three Workgroups (Implementation, Adoption, and Scaling, Measurement and Outcomes, and Trust and Patient-Centeredness) will produce three products each, including one Level 2 product and two Level 3 products. The Standards and Regulatory Frameworks Workgroup will produce two Level 2 products.

Twelve Workgroup support staff members support product development, with direction from the Stakeholder Center lead and the CDSiC leadership team. The product development process varies across each product, but generally involves targeted literature searches, stakeholder input and feedback (e.g., through Workgroup engagement), qualitative data collection (e.g., key informant interviews [KIIs], focus groups, patient panels, technical expert panels [TEPs]), and analysis and synthesis (Exhibit 1). In addition, product development activities involve bi-weekly meetings between Workgroup Leads and support teams. Each Workgroup product goes through a rigorous internal review process by the Stakeholder Center and CDSiC leadership team at the outline and draft stages to ensure that the products are high-quality written deliverables that provide substantive contributions to the CDS field.

Exhibit 1. Workgroup Product Development Process



Workgroups continued to meet bi-monthly through the reporting period, using meetings to update Workgroup members on product progress and solicit their input on product scope and activities. During the reporting period, Workgroups submitted drafts of all remaining products to AHRQ for review. Specifically, Workgroups submitted one draft product to AHRQ in April 2024, two draft products in May 2024, and five draft products in June 2024. See below for more information and development updates on each product.

Implementation, Adoption, and Scaling Workgroup

Landscape Assessment on the Use of Artificial Intelligence to Scale PC CDS (Level 3)

In seeking to identify how to address barriers to the wide adoption and impact of PC CDS, a promising approach is to leverage the increasing capabilities of artificial intelligence (AI), including large language models such as ChatGPT. The product maps findings from real-world implementations of AI with CDS to five dimensions where AI can scale PC CDS: 1) automate processes, 2) facilitate technical development and support of PC CDS, 3) complement direct/immediate clinician interaction, 4) facilitate sharing and replication of PC CDS, and 5) support cognitive processes and decision making. Recommendations on how AI can be used to scale PC CDS in a patient-centered way are also provided.

To develop this product, the Workgroup support team synthesized findings from peer-reviewed and grey literature and conducted KIIs with two electronic health record (EHR) developers, 4 CDS developers, 3 researchers, 1 patient representative, and one health system leader. The draft report was submitted to AHRQ in March 2024. During the reporting period, the Workgroup support team received AHRQ feedback and submitted a revised version of the report in May 2024. The report was then sent to AHRQ's Office of Communications (OC) for final review and approval ahead of public posting.

Exploring Challenges and Opportunities for Patient Engagement, Implementation, Adoption & Scaling through PC CDS Case Studies (Level 3)

Case studies offer an opportunity to identify insights that only become apparent when delving into specific use cases. This product will describe case studies of real-life PC CDS implementations, with a particular focus on those implementations supported by AHRQ, and derive more detailed insights into the key challenges, opportunities, and recommendations for the implementation, adoption, and scaling of PC CDS.

The Workgroup conducted key informant interviews (KIIs) with nine prior AHRQ grantees who received AHRQ funding to implement PC CDS interventions in their clinical settings. The Workgroup also reviewed project materials including AHRQ project profiles, final reports, published manuscripts, and webinars. Using information provided in the KIIs and from document review for each case study, the Workgroup support team drafted a report to describe key findings from each case study, including common challenges, corresponding solutions, and opportunities for future work to foster adoption and scale PC CDS initiatives. The report uses an organizing framework that presents findings via four domains, including patient engagement, implementation, adoption, and scaling. The Workgroup support team will submit the draft report to AHRQ in July 2024.

Opportunities to Determine Value for PC CDS (Level 2)

Favorable return on investment (ROI) is critical to the widespread implementation, adoption, and scaling of any healthcare intervention. However, there is limited literature on ROI for PC CDS, which is a significant barrier to widespread dissemination of PC CDS. This product catalogs opportunities and approaches for PC CDS to provide a favorable ROI based on a focused literature review and KIIs. The ROI examination used in this product focuses primarily on documenting approaches to measuring profit

and cost savings of safe and effective PC CDS. Secondary outcome measures include proxy measures that impact value such as clinician and patient satisfaction, CDS use, alert fatigue, reputation, market share, and infrastructure development, among others. The final deliverable is a report summarizing the opportunities, methodologies, and resources needed to demonstrate ROI for PC CDS, as well as current gaps and opportunities for further exploration in formulating PC CDS ROI estimates and models.

The final report incorporates findings from a series of KIIs. Nine of the key informants who participated in interviews for the Workgroup's product, Landscape Assessment on the Use of Artificial Intelligence to Scale PC CDS, were asked about ROI. This included four CDS developers and EHR developers, four industry representatives and one researcher. During the second quarter of 2024, the team conducted five additional KIIs with two researchers, one health system leader, one patient representative, and one payer. The Workgroup support team conducted these interviews to help supplement findings from their review of 26 peer-reviewed articles. The Workgroup received additional input on this product at the 2024 CDSiC Annual Meeting, which also serves as an input for the final product. The Workgroup began drafting the report during the reporting period, and they will submit the draft report to AHRQ in July 2024.

Measurement and Outcomes Workgroup

Inventory of Patient Preference Measurement Tools for PC CDS (Level 3)

In 2023, the CDSiC developed the [Taxonomy of Patient Preferences](#), which identified and described six domains of patient preferences relevant to PC CDS, as well as considerations for capturing, implementing, and using patient preferences in care. This product builds on the foundation work of the prior report to 1) identify existing instruments/tools to collect and assess patient preferences that fall within the Taxonomy of Patient Preferences, 2) aggregate and describe available measures/instruments in a filterable inventory, and 3) describe considerations relevant to using the tools in the inventory and for measuring patient preferences more broadly as well as current gaps in the measurement of patient preferences.

To develop this product, the Workgroup support team conducted a scoping review of the peer-reviewed and grey literature to identify patient preference measurement tools/instruments and identify gaps in the current practice of eliciting patient preferences directly from patients. The final inventory includes 43 instruments/tools for capturing patient preferences within the clinical context and provides information about the tool that will help users understand if the tool is right for their setting. The draft product was submitted to AHRQ in March 2024 and was subsequently revised based on AHRQ feedback. The final product was sent to AHRQ OC in May 2024 for final review and approval.

Patient Prioritization of Measurement Areas for PC CDS (Level 3)

The Workgroup consulted nine patient advocates to develop a prioritized list of measurement areas that inform what should be considered standard in measuring patient health journey for PC CDS. Using 15 [patient health journey measurement areas](#) identified previously by the CDSiC, this product summarizes findings from a multi-step prioritization activity performed by the patient advocates to determine which outcomes of interest are most important to patients.

Previously, the Workgroup developed a form for the patient advocates to rate the importance of the 15 areas asynchronously, using a 5-point Likert scale from “Extremely Important” to “Not at all Important”. Eight participants then met virtually to review and discuss results of the rating activity. During the meeting, patient advocates raised additional themes and considerations around factors that are important to patients when making health-related decisions, including around inclusion of caregivers and additional emergent measurement areas. Following the meeting, the participants then ranked the measurement areas against each other in order of importance on their own. The final report summarizes the panel methods as well as key themes and findings from the panel, and it provides the prioritized list of measurement areas. Implications of these findings for PC CDS measurement as well as future directions are discussed. The Workgroup submitted the draft report to AHRQ in May 2024.

PC CDS Planning and Reporting Tool (Level 2)

In 2023, the CDSiC developed the [PC CDS Planning, Implementation, and Reporting Tool](#) to support consistent reporting of PC CDS interventions in the literature. This year, the Measurement and Outcomes Workgroup has worked to refine the tool and its accompanying user guide for improved usability and accessibility, which will enable broader adoption of the tool.

To refine the tool, the Workgroup consulted several experts in CDS through various formats. First, the Workgroup completed three usability testing sessions with external experts to further refine the formatting, organization, and framing of the reporting tool. The refined reporting tool was then sent to four CDS experts and five novices to field test the tool using a CDS intervention that they have worked on. Participants completed an initial feedback form, and the feedback guided focus group discussions with the experts and novices. Based on additional input from Workgroup Leads and Workgroup members, the Workgroup support team further revised the reporting tool and user guide to streamline and consolidate tasks within the tool, improve clarity, and provide additional detail on task descriptions.

The updated draft tool and user guide was submitted to AHRQ in June 2024.

Standards and Regulatory Frameworks Workgroup

An Initial Taxonomy of Override Reasons for PC CDS Recommendations (Level 2)

The Workgroup developed a written taxonomy of PC CDS override reasons, encompassing override reasons for both clinicians as well as patients/caregivers. The taxonomy serves as a foundation for creating standard override terminology, which will support advancement in analysis of PC CDS overrides. The Workgroup support team identified an initial list of almost 200 override reasons currently in use through a limited review of the relevant literature and a review of override reasons in EHR systems obtained from healthcare organizations, as well as by engaging with experts and clinicians in the field.

To refine the taxonomy, the Workgroup support team developed and completed a card sort activity in which override reasons were grouped under the taxonomy domains and evaluated for their alignment between draft taxonomy domains and real-world override reasons. The Workgroup then conducted KIIs with four experts in fields relevant to PC CDS to further revise the taxonomy based on expert opinion.

To validate and finalize the taxonomy, the Workgroup conducted an additional four KIIs with an informatician, CDS developer, patient representative, and patient-centeredness researcher. The Workgroup support team submitted the draft report to AHRQ in April 2024. During the reporting period, they revised the report based on AHRQ feedback and resubmitted a revised version in June 2024.

Prioritizing Patient Preferences for Standardization to Support PC CDS (Level 2)

The current standards landscape for patient preferences indicates that some domains of patient preferences are more routinely collected and have standardized codes for representing these data in PC CDS tools compared to others. The Workgroup explored the prioritization of patient-centric data for PC CDS, including prioritizing patient preference domains/sub-domains for standardization, through a multi-stakeholder roundtable.

The Workgroup hosted the roundtable with ten individuals, representing patient, informatician, EHR developer, researcher, and standards developer perspectives. The roundtable participants reviewed background on patient preferences and the importance of standardization, and through a guided conversation, discussed which patient preferences should be routinely collected for PC CDS and what preference information is primed for standardization to create a prioritization of patient preferences for standardization. Following the roundtable, the Workgroup conducted a semistructured interview with a clinician to gain additional context on actionable steps for the standards development community to move patient preference standardization forward.

The product report summarizes these methods and findings and provides actionable next steps for the standards development community to move patient preferences standardization forward. Next steps are prioritized by the short-term and long-term needs for standardization. The Workgroup submitted the draft report to AHRQ in June 2024.

Trust and Patient-Centeredness Workgroup

Patient and Caregiver Perspectives on Generative Artificial Intelligence in Patient-Centered Clinical Decision Support (Level 3)

With healthcare on the cusp of an AI revolution, this product aimed to describe patient and caregiver views on the use of AI for CDS to better understand how the use of AI in PC CDS may impact patient trust in providers and clinical information.

The Workgroup conducted three small group discussions with five patient representatives and two caregivers to understand their perspectives on the use of generative AI tools (e.g., chatbots) in PC CDS by health systems and clinicians, using example case scenarios developed by the CDSiC Innovation Center. In the product report, the Workgroup synthesizes and describes patient and caregiver perspectives on AI and provides a list of considerations for the development of AI-enabled PC CDS tools that support trust and patient-centeredness. The draft report was submitted to AHRQ for review in March 2024. During the reporting period, the Workgroup received feedback from AHRQ and produced a revised draft that was resubmitted to AHRQ in May 2024, which was approved for final review by AHRQ OC.

Capturing Patient Preferences for PC CDS within Clinician Workflows and Patient Lifeflows (Level 3)

To further advance the capture and use of patient preference information for PC CDS, the Workgroup developed this product that identifies methods for capturing patient preference data in ways that reduce burden for both patients and clinicians. The Workgroup synthesized findings from over 50 publications and from KIIs with nine clinicians and patients to discuss the collection of patient preferences within clinical workflows and patient lifeflows. The final report summarizes approaches for collecting and integrating patient preferences in PC CDS workflows and lifeflows and includes illustrative swim lane diagrams that show where patient preference data can be collected in the clinician workflow and patient lifeflow for specific use cases. The report also provides key considerations to optimize collection and use of patient preferences as well as short and long-term opportunities to advance the incorporation of patient preferences in PC CDS. This product ties closely to the Measurement and Outcomes Workgroup's Inventory of Patient Preference Measurement Tools for PC CDS, using the tools identified in this product as a starting point. The Workgroup submitted the draft report to AHRQ in May 2024.

Action Plan to Collect and Use Social Determinants of Health Data in PC CDS (Level 2)

The Workgroup developed an action plan that outlines key challenges and current efforts in using social determinants of health (SDOH) data for PC CDS as well as potential short-term and long-term opportunities to address challenges. The action plan speaks to various needs related to PC CDS design, development, and implementation across the PC CDS Lifecycle. It identifies five key areas, or needs, that must be addressed to incorporate SDOH factors across each phase of the PC CDS Lifecycle. Within each of the five needs, the action plan describes relevant challenges to uptake of SDOH relevant to PC CDS and current efforts and corresponding opportunities to overcome those challenges. This product will facilitate a shared understanding of critical gaps in our ability to address SDOH factors as part of PC CDS that must be addressed.

During the reporting period, the Workgroup synthesized findings from 55 peer-reviewed journal articles and conducted KIIs with eight key informants representing researchers, informaticians, patient representatives, and standards developers. In synthesizing findings from the literature, the Workgroup developed a schema that maps PC CDS needs, challenges, current efforts, and opportunities for future work for incorporating SDOH into PC CDS. The Workgroup submitted the draft report to AHRQ in June 2024.

Next Steps

We anticipate that all draft products will be submitted to AHRQ by July 2024. Product development and refinement will continue until September 2024. To support development, Workgroups will continue to meet bi-monthly throughout the project period to refine product content and shape the overall look and feel of each product. Additionally, the Planning Committee will meet as an opportunity for Workgroup Leads to share findings from their products and collaboratively identify how products can work together to advance the overall field of PC CDS. As product development continues, Workgroup support teams will work to ensure that products align with diverse needs and benefit end users.

Appendix. CDSiC Workgroup Products (Developed 2022-2023)

Outcomes and Objectives Workgroup

[Outcomes and Objectives Workgroup: Integration of Patient-Centered Clinical Decision Support Into Shared Decision Making](#)

This report provides a framework for the use of PC CDS support to facilitate shared decision making.

[Outcomes and Objectives Workgroup: Patient-Focused Outcome Measures for Patient-Centered Clinical Decision Support](#)

This report offers measures to evaluate PC CDS impact on patient-focused outcomes.

[Outcomes and Objectives Workgroup: Taxonomy of Patient Preferences](#)

This Taxonomy identifies and characterizes patient preferences relevant to PC CDS.

Scaling, Measurement, and Dissemination of CDS Workgroup

[Scaling, Measurement, and Dissemination of CDS Workgroup: Approaches to Measuring Patient-Centered CDS Workflow and Lifeflow Impact](#)

This report examines how PC CDS interventions impact care team workflows and patient lifeflows.

[Scaling, Measurement, and Dissemination of CDS Workgroup: PC CDS Performance Measurement Inventory User Guide](#)

This user guide identifies available measures to assess PC CDS.

[Scaling, Measurement, and Dissemination of CDS Workgroup: PC CDS Planning, Implementation, and Reporting User Guide](#)

This user guide provides details on capturing PC CDS implementation features.

Standards and Regulatory Frameworks Workgroup

[Standards and Regulatory Frameworks Workgroup: Advancing Standardized Representations for Patient Preferences to Support Patient-Centered Clinical Decision Support](#)

This report describes standards for patient preferences data.

[Standards and Regulatory Frameworks Workgroup: Environmental Scan](#)

This environmental scan reveals opportunities to evolve standards and regulatory frameworks to advance PC CDS.

[Standards and Regulatory Frameworks Workgroup: Improving Interoperability of Patient Apps with the Health IT Ecosystem](#)

This report identifies opportunities for improving patient app interoperability to advance PC CDS.

Trust and Patient-Centeredness Workgroup

[Trust and Patient-Centeredness Workgroup: An Introductory Handbook for Patient Engagement Throughout the Patient-Centered Clinical Decision Support Lifecycle](#)

This handbook provides guidance and resources for patient engagement in PC CDS.

[Trust and Patient-Centeredness Workgroup: Improving the Source Credibility of Patient-Centered Clinical Decision Support Tools](#)

This report provides a framework for understanding the role of source credibility in PC CDS support tools.

[Trust and Patient-Centeredness Workgroup: Methods for Involving End-Users in PC CDS Co-Design](#)

This resource paves the way for end users' involvement in co-design of PC CDS.