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Lessons from Detecting Cognitive Impairment Including Dementia (DetectCID) in Primary Care

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SUPPLEMENTARY MATERIAL

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Abstract

Background: Cognitive impairment, including dementia, is frequently under-detected in primary care. The Consortium for Detecting Cognitive Impairment, including Dementia (DetectCID) convenes three multidisciplinary teams that are testing novel paradigms to improve the frequency and quality of patient evaluations for detecting cognitive impairment in primary care and appropriate follow-up.

Objective: Our objective was to characterize the three paradigms, including similarities and differences, and to identify common key lessons from implementation.

Methods: A qualitative evaluation study with dementia specialists who were implementing the detection paradigms. Data was analyzed using content analysis.

Results: We identified core components of each paradigm. Key lessons emphasized the importance of engaging primary care teams, enabling primary care providers to diagnose cognitive disorders and provide ongoing care support, integrating with the electronic health record, and ensuring that paradigms address the needs of diverse populations.

Conclusion: Approaches are needed that address the arc of care from identifying a concern to post-diagnostic management, areefficientandadaptabletoprimarycareworkflows,andaddressadiverseagingpopulation.Ourworkhighlightsapproaches to partnering with primary care that could be useful across specialties and paves the way for developing future paradigms that improve differential diagnosis of symptomatic cognitive impairment, identifying not only its presence but also its specific syndrome or etiology.

Keywords

Cognitive assessment; dementia; detection; diagnosis; implementation evaluation; mild cognitive impairment; primary care

INTRODUCTION

In response to the National Plan to Address Alzheimer's Disease, the National Institute of Neurological Disorders and Stroke (NINDS) Alzheimer's Disease-Related Dementias (ADRD) Summits in 2016 and 2019 identified research to improve early detection of

cognitive impairment, including mild cognitive impairment (MCI) and dementia, as a highest-level scientific priority [1–3]. While more evidence is needed to support screening of asymptomatic patients [4], it is widely accepted that clinically significant cognitive concerns that arise in the primary care setting should be followed by an evaluation for cognitive impairment using a standardized and validated assessment [5–8].

With early detection of cognitive impairment comes opportunities for improved care. Many treat-able or potentially reversible underlying conditions—including psychiatric disorders, sleep disorders, medication side-effects, hypothyroidism, infections such as HIV or syphilis, and vitamin B_{12} deficiency—can be identified and treated in the primary care context [9]. Informed patients and care partners (who may be family members, friends, or paid caregivers) have time to plan for future care and address issues such as driving, gun safety, home safety, financial management, and medication administration [9–11]. Collaborative care interventions that address patient and care partner needs have been shown to improve quality of life for the person with dementia and care partners and to reduce healthcare expenditures [12, 13].Furthermore, early detection is necessary to identify potential candidates for clinical trials and disease modifying therapies [14, 15].

Unfortunately, cognitive impairment, including MCI and dementia, are frequently not detected in primary care, and diagnosis is delayed until moderate or advanced stages in 50% or more patients [16, 17] with greater delays among racial and ethnic minorities [18]. Primary care providers (PCPs) are well-situated to detect cognitive decline because they often have long-term relationships with patients and may witness clinical manifestations of cognitive decline—both overt functional and communication changes and subtle signs such as irregularities in medication or appointment adherence, loss of control of chronic disease, weight loss, or increase in emergency room visits or hospitalizations [19–24]. PCPs experience numerous barriers to detecting cognitive impairment. Commonly used cognitive assessments take time and training to administer, interpret, document, and follow-up, which makes them hard to use in a busy practice setting [25, 26]. Standard approaches are less accurate at detecting cognitive impairment among medically underserved minorities [27]. Furthermore, the next steps following detection can be seen as a barrier, as many PCPs report low confidence disclosing a diagnosis of MCI or dementia and providing post-diagnostic care[26,28].Infact, screening positive for cognitive impairment on a brief cognitive test has been shown to be insufficient to alter provider practice in a majority of cases [28], highlighting the need for paradigms that address the full arc of diagnostic care.

The Consortium for Detecting Cognitive Impairment, Including Dementia (DetectCID) is a collaborative network among research teams at the University of California, San Francisco (UCSF), Albert Einstein College of Medicine (Einstein), and Northwestern University(NU).Our goal is to address the unmet need to detect cognitive impairment, including dementia, in large and diverse populations seen in primary care across the United States, including in populations facing health disparities, when a patient, care partner, or care provider indicates concern. These teams of dementia experts have each developed a detection paradigm that consists of 1) a brief (10 minutes or less), accurate, user-friendly cognitive assessment and 2) an implementation protocol for primary care. The implementation protocols specify the interprofessional team workflow for completing

the assessment and the approach to providing recommendations that guide PCPs on post-assessment evaluation and care. All teams piloted their paradigms, conducted feedback sessions with PCPs that were used to adapt the implementation protocols, and participated in frequent meetings to share challenges, strategies, and findings. We describe the paradigms and identify cross-consortium key lessons regarding how to improve the detection of cognitive impairment in primary care. These findings can provide guidance for clinicians and researchers aiming to implement new care pathways.

METHODS

Design, setting, and participants

In this qualitative implementation study, data sources included direct observations of consortium meetings, qualitative content analysis of paradigms and written progress reports from consortium members, and identification of lessons learned based on feedback sessions with key stakeholders. Authors ABS and CG observed and took fieldnotes at 27 committee meetings, each attended by approximately 10 consortium members representing all three sites, and three annual all-day consortium meetings attended by over 30 consortium and advisory board members. Expertise across these meetings include epidemiology/biostatistics, geriatrics, health disparities, health services research, neurology, neuropsychology, palliative medicine, primary care, and public health. ABS (a medical anthropologist) engaged key stakeholders in one-on-one feedback sessions. Written reports and key stakeholder feedback included identification of facilitators and barriers when implementing cognitive impairment detection paradigms. Data collection and iterative analysis occurred from November 2017 – June 2021. Each site also conducted feedback sessions with PCPs and pre-implementation work, data which was included at meetings and in reports.

Analysis

Qualitative content analysis was used to analyze multiple data sources using the software ATLAS. ti [29]. The first author (ABS) reviewed and coded all data. She developed a preliminary codebook based on inductive coding of the dataset. Subsequently, the senior author (KLP) reviewed all codes. ABS and KLP discussed coding discrepancies until consensus was reached and then reviewed and identified and refined themes. They presented these data to consortium leadership for feedback and continued iteration. This research was approved by the Institutional Review Board of the University of California, San Francisco, and all human subjects provided informed consent.

RESULTS

Cross-consortium clinical strategy

The paradigms are initiated when a patient, care partner, or provider raises concern for incident cognitive impairment. A brief cognitive assessment of 10 minutes or less is administered by clinical staff and categorizes patients into two groups: cognitive impairment detected, and no objective cognitive impairment detected or suspected. EMR-integrated recommendations that are adapted to each clinical site guide PCPs to evaluate for and treat

underlying medical conditions that are typically diagnosed in primary care, to determine if a diagnosis of mild cognitive impairment or dementia is appropriate, to make specialist and community referrals, and to provide post-diagnostic care and education.

Site-specific clinical strategies

There are notable differences in the paradigms at each site (see Table 1 and below).

UCSF Paradigm: The TabCAT Brain Health Assessment

The TabCAT Brain Health Assessment (TabCAT-BHA) is a brief cognitive assessment administered using an iPad [30]. The assessment is comprised of 7 minutes of patient testing time and 3 minutes of an optional informant survey and is available in 18 languages. The patient portion includes two required tests: A. *Favorites* (associative memory) and B. *Match* (executive functions and speed), and two optional tests: C. *Line Orientation* (visuospatial) and D. *Animal Fluency* (language generation). The optional E. *informant survey* asks about changes in cognitive, behavioral, and functional skills and screens for delirium. The TabCAT-BHA, also referred to by its shorter name “the BHA” in prior publications, is sensitive and specific to cognitive impairment in English and Spanish speakers, including greater sensitivity to MCI than traditional paper-based brief cognitive assessments, and reliably measures decline over one year [31–33]. Although the implementation protocol does not prescribe how providers should identify concerns, providers are encouraged to be vigilant for symptoms of cognitive impairment in older and other at-risk patients, and to query at-risk patients (and care partners, when possible) about cognitive concerns annually with a simple question such as “have you noticed changes in your memory or other thinking skills.” Concerns are followed by TabCAT-BHA testing by a medical assistant. Scoring is automated and provider guidance for next steps are integrated with the EHR. PCPs receive training on the 5-Step Brain Health Work-up [34], and can refer patients and care partners for an optional Brain Health Consultation, which is a 60-minute phone appointment with a dementia expert nurse or social worker who evaluates and addresses immediate needs related to the cognitive disorder and documents findings and recommended next steps for the PCP in the EHR.

Einstein Paradigm: The 5-Cog Battery

5-Cog is a brief cognitive assessment with 3 components: A. *Picture-based Memory Impairment Screen,* a 4-item delayed free- and cued-recall test developed from the Memory Impairment Screen but using pictures, instead of words, to reduce literacy requirements [35]. B. *Timed walk*: assessment of gait speed over a fixed distance, derived from the Motoric Cognitive Risk syndrome assessment, defined as slow gait in the presence of a cognitive complaint, which has been validated in multiple diverse cohorts nationally and internationally as an early and predictive (70% increased risk) clinical marker of cognitive decline [36]. C. *Paper-Match*: a 90-second paper-based version of the computerized Match test described above. The 5-Cog is fast (under 5 minutes), easy to administer and score (requiring only stop-watch, pen, tape measure, and minimal training), and non-language based. The 5-Cog classifies patients with high risk of developing cognitive impairment from those with no cognitive impairment. The protocol is initiated when patients or care partners respond affirmatively to a cognitive concern screening questionnaire administered

in the waiting room, or when a concern is raised by clinical staff. The test is administered by a research assistant in the clinical setting. The tester inputs 5-Cog scores into a semi-automated decision tree in the EHR that guides clinicians through the next steps in evaluation and care.

Northwestern Paradigm: The MyCog

MyCog is an iPad-based seven-minute self-administered cognitive assessment comprised of modified versions of two National Institute of Health Toolbox Cognition Battery [37] assessments that are predictive of dementia status: A. *Picture Sequence Memory*, a test of episodic memory and B. *Dimensional Change Card Sort*, a test of executive function [38, 39]. The tests were shortened and adapted for self-administration. At routine Annual Wellness Visits, Medicare-eligible patients answer a short set of questions to identify self-reported cognitive concerns [7]. For patients who endorse concerns, whose care partners raise a concern, or whose PCP suspects cognitive impairment, the MyCog assessment is deployed in the waiting room, exam room, or at whatever point best fits the clinic's work-flow. Results are automatically integrated with the EHR. Abnormal findings trigger a series of orders to facilitate further workup and additional referral and diagnostic guidance and recommendations.

Cross-consortium data harmonization of outcomes measures

The DetectCID Consortium agreed on measurable EHR outcomes to evaluate relevant change in PCP and practice behavior as a result of the implementation of the cognitive assessment paradigms. These are specified in the Supplementary Material and summarized here:

1. New dementia, MCI, or other cognitive diagnosis documented;
2. Tests ordered for treatable causes of cognitive impairment as recommended by the published guidelines of professional societies [6, 9, 40];
3. New prescriptions for 'dementia medications' (i.e., medications that are commonly prescribed to treat Alzheimer's or related dementias);
4. Referrals for cognitive or dementia evaluation by specialists.

These outcomes may be evaluated separately or by a composite of these endpoints via comparison to a control group or pre-intervention baseline. We hypothesize that they will increase because of the implementation.

Key lessons about detecting cognitive impairment in primary care

We identified key lessons across consortium sites and examples from each site that are important for improving the detection of cognitive impairment in primary care and guiding those who are developing new care pathways for dementia detection.

Engage primary care clinical team members as partners in the implementation

For all paradigms, primary care clinical team engagement and buy-in were key facilitators for successful implementation. All research teams highlighted the value of partnering with

PCPs and other members of the clinical team, including medical assistants and nursing staff, to assess clinic work-flows, adapt implementation protocols to fit into existing workflows, and identify strategies to promote the use of the paradigm and make it appealing to clinical stakeholders.

At one TabCAT-BHA implementation practice, the research team met with two PCP advocates monthly during planning and early implementation, observed clinic workflow, and worked with them to adapt the TabCAT-BHA to their clinical setting and to disseminate the paradigm to medical assistants and other PCPs at their clinic. At the 5-Cog practice setting, the research team engaged the clinic's director as an advocate PCP who assisted in the development of a pilot study and collaborated on adaptation of the implementation protocol to minimize disruptions. To engage the clinic staff and physicians, the research team hosted an educational session and individual meetings prior to the launch and invited ongoing feedback. To develop the MyCog implementation protocol, the research team engaged academic internal medicine and Federally Qualified Health Center (FQHC) partners through meetings with clinical leadership and practice clinicians. An area of emphasis for the meetings with FQHC partners was to understand best practices for resource-constrained clinics.

Identify pathways for PCPs to complete diagnostic workups, refer patients to specialists and provide care support that are adapted to the practice

All teams found that PCPs wanted guidance on interpretation of test results, and clinical next steps for evaluation, diagnostic disclosure, and care. Furthermore, PCPs faced issues with dementia specialist referrals, including the lengthy time from referral to when patients were seen and limited access, and needed guidance about how to identify appropriate community resources. In response, all paradigms produce either automated or semi-automated reports with decision guides that address these needs.

The TabCAT-BHA produces an automated report that summarizes the patient's performance and provides guidance on next steps for evaluation and care. In addition, to address gaps in care support identified by the UCSF PCPs, we developed and implemented the option for PCPs participating in the trial to route a referral to a dementia expert nurse for a telephone Brain Health Consultation, described above. The 5-Cog paradigm includes EHR-integrated decision support that guides PCPs beyond the screening results by offering recommendations for next steps including community resources and their contact information, and suggestions for referrals, medications, and tests. The MyCog paradigm produces an automated report with PCP recommendations that were adapted to the resources available at the academic medical center and FQHC sites. Notably, because the FQHC network practices do not have a clear referral pathway for specialist evaluation, the provider recommendations for these sites were developed with the understanding that the follow-up for most patients would be completed in primary care.

Results must be integrated with the electronic health record (EHR)

EHR integration was universally important to PCPs at all consortium implementation practices. PCPs expressed interest in ways to streamline integration of assessments and

results into their notes and patient charts. Taking this reality and requirement of everyday clinical practice into account, all three DetectCID paradigms included integration of their brief cognitive assessment reports into the EHR. In order to build in HER integration for digital assessments, practices may require software platform user support and funding for EHR integration and maintenance.

PCPs using the TabCAT-BHA can populate the encounter note with the automated report using an EPIC SmartLink. The 5-Cog paradigm incorporates test results and PCP decision trees into the HER using a quick text inputted into a clinical note. In its next iteration, this paradigm will be adapted into a fully integrated “best practice advisory” that will automatically show recommendations whenever anyone inputs 5-Cog screening results into the EHR. Clinicians using the MyCog can follow patients who have multiple wellness visits using trend data populated in an EHR flowsheet with descriptions of relative decline.

Paradigms should address the needs of diverse populations

A goal of the consortium is to implement paradigms that will mitigate health disparities in dementia. Approaches taken by the three sites included designing and validating cognitive assessments for diverse cultural and literacy groups, adapting the assessments into multiple languages, and partnering with clinics that serve underserved and underrepresented populations.

Key features of each assessment facilitate use in underserved populations. The TabCAT-BHA includes stimuli and response formats that are appropriate across cultures and education levels, has been adapted into 18 languages, and has validation data available for two distinct populations of Spanish-speakers [32, 33]. Validation data for other languages is in progress. The clinical teams at the implementation practices have experienced challenges when administering the TabCAT-BHA using a phone interpreter, so the research team is developing a self-administered version that would not require an interpreter. In the 5-Cog, the Picture-Based Memory Impairment Screen minimizes educational bias and expands the scope of dementia evaluations to low literacy populations through the use of picture sets that account for ethnic and cultural differences and low literacy [41]. The assessment is low-cost, requiring only pen, paper, measuring tape, and stopwatch. In MyCog, tool development and normative data collection was conducted with cohorts recruited from FQHC clinics that serve low-income Black and Hispanic/Latino communities. In implementation, the team is working with both academic and safety net practices.

Paradigms should be flexible to include care partners when possible, but must not require them

All paradigms encourage PCPs to include care partners. If a care partner is present and raises a concern for cognitive decline, this initiates the protocol. Incorporating standardized informant reports of the patient’s symptoms can improve accuracy for the detection of cognitive impairment, but this cannot be required because many patients come to appointments alone. For the TabCAT-BHA, an optional informant survey about changes in memory and other symptoms increases the detection accuracy when it is included [31].

All procotols encourage PCPs to include care partners in diagnostic disclosure and post-diagnostic care.

Sustainability is a challenge

Each consortium site faces the challenge of how to make their paradigms sustainable, and collectively, the group considered options for sustainability that included seeking reimbursement for cognitive assessment via the Annual Wellness Visit and the Cognitive Assessment and Care Planning codes [7, 42, 43], and maximizing risk adjusted payments by identifying and coding dementia diagnoses for Medicare Advantage beneficiaries [12]. For ongoing success in primary care, we found that paradigms must be financially sustainable, fit efficiently within clinical workflows, and be perceived by PCPs as providing value for their patients. An added challenge for the digital paradigms (TabCAT-BHA and MyCog) is that they rely on software platforms that are primarily supported by grant funding and require ongoing funding for EHR integrations, software maintenance and upgrades, and user support. During the COVID-19 pandemic, a challenge to sustainability is that all paradigms are administered in-person. Brief cognitive assessments that can accurately detect cognitive impairment in a digital remote format could help address this challenge.

DISCUSSION

We characterized three new paradigms for detecting cognitive impairment in primary care and identified key lessons that emerged during their development and implementation. Practice change in primary care can be challenging due to the barriers associated with limited time, resources, and competing needs when choosing what to evaluate and treat [44].Providers may avoid or delay evaluating patients because they lack confidence interpreting cognitive assessment results, face challenges accessing specialists and connecting patients with appropriate services, and lack the time and training needed to address diagnostic disclosure and provide quality dementia care [7, 25, 45, 46]. Addressing these barriers requires primary care advocates, streamlining workflow, and providing EHR-integrated guidance around next steps in care.

The model of the DetectCID paradigms is that concerns for incident cognitive impairment in the primary care setting are followed by a brief cognitive assessment that categorizes patients into one of two groups—no objective cognitive impairment detected, and detection or suspicion of cognitive impairment—with each group having pre-specified follow-up that is implementable, turnkey and a critical part of the paradigms. The rationale and recommendations for follow-up are communicated through the EHR. When cognitive impairment is detected, there commendations may include guidance on completing the workup for medical conditions that are commonly managed in primary care; guidance on evaluating for, treating, and managing cognitive impairment, including MCI and dementia, in primary care; and referrals to one or more specialists including dementia specialists who could provide an etiological diagnosis. Recommendations may also include links to community and educational resources, guidance on disclosing a cognitive diagnosis, and tips on how to bill. Key lessons from DetectCID include that the implementation protocols must be adapted to maximize workflow efficiencies and that the content and format of assessment

results and recommendations presented in ways that PCPs value and understand, with a focus on how to improve patient care given the realities (e.g., available resources) of the practice.

The approach of the DetectCID paradigms addresses practice gaps in the gateway to MCI and dementia diagnosis, specifically by equipping PCPs to act on cognitive concerns with a brief, validated cognitive assessment and an implementation protocol that guides them on next steps [6]. This approach is consistent with practice-based guidelines that advocate for a central role for PCPs in the detection, diagnosis, and treatment of MCI and dementia [7, 8, 47], and that encourage PCPs to be alert for and to act on cognitive concerns, but not to screen asymptomatic patients [4, 48]. Care partners are included when possible, particularly in the identification of concerns and disclosure of results. We think our approach will contribute to earlier and more consistent detection of MCI and dementia. A limitation of this approach is that it will miss patients with cognitive impairment for whom a concern is not identified, patients with impairment too mild to be detected on a brief assessment, and asymptomatic patients in the preclinical stage of disease who could be identified only with biomarker testing [49, 50].

The U.S. aging population is becoming more diverse [51], yet significant structural disparities in dementia diagnosis persist [18, 52]. The brief cognitive assessments used by the DetectCID consortium are designed, validated, and implemented with health disparities populations. We have learned that more work is needed to streamline the use of these paradigms with diverse patients in practice, particularly when testing in multiple languages, which can be challenging with an interpreter and when testing in low-literacy populations. Approaches to address disparities in detection with non-English speakers include increasing the number of bilingual healthcare workers, validating cognitive assessments that are culture fair, and developing self-administered digital assessments.

Limitations

This study is based on implementation in a discrete set of clinic practices with high touch from academic research teams. Future work is needed to understand facilitators and barriers to paradigm diffusion across diverse practices including those that are not closely associated with academic medical centers. Second, the care recommendations studied focus on the peri-diagnostic period, and more work is needed to understand how to support PCPs to provide longitudinal dementia care [53]. Finally, these findings represent early qualitative lessons and will be followed by a quantitative evaluation of the impact of these paradigms on PCP behavior and patient outcomes.

Conclusion and future directions

The effectiveness of the DetectCID paradigms is now being tested to evaluate whether implementation quantitatively increases the diagnoses documented, tests ordered, new prescriptions for dementia medications, and referrals for cognitive or dementia evaluation by specialists. Key lessons from our work so far highlight promising approaches to improving the detection of cognitive impairment, as well as approaches to partnering with primary care that could be useful across specialties. Furthermore, it paves the way for

developing future paradigms that improve differential diagnosis of symptomatic cognitive impairment, identifying not only its presence but also its specific syndrome or etiology [47]. These future paradigms may shift the detection earlier in the disease course, incorporate scalable biomarkers, and be increasingly important with the development of specific disease-modifying therapies.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Key Elements of DetectCID Paradigms

	UCSF TabCAT-BHA	Einstein 5-Cog	Northwestern MyCog
Brief Cognitive Assessment Components	Required: Match (executive function and speed), Favorites (memory) Optional: Line Orientation (visuospatial), Animal Fluency (language generation), Brain Health Survey (informant survey on functional decline and symptoms)	Picture-based Memory Impairment Screen (memory), Motoric Cognitive Risk Syndrome Assessment (movement), Paper-Match (executive function and speed)	Picture Sequence Memory (memory), Dimensional Change Card Sort (executive function)
Platform	TabCAT (tablet-based application)	Paper and pencil	NIH Toolbox (tablet-based application)
Length	7–10min	5 min	7 min
Administration of cognitive test: self versus examiner	Examiner	Examiner	Both
EHR integration	Automated	Semi-automated	Automated
Practice change tools	EHR-embedded decision support, 5-Step Brain Health Workup, Brain Health Consultation	EHR-embedded decision support using best-practice alerts	EHR-embedded decision support using best-practice alerts, automated referral orders
Test setting	Academic medical center geriatric and primary care practices	Urban primary care practice in a large regional health system	Urban academic primary care practice; Federally Qualified Health Centers
Population(s) of focus to address health disparities	Spanish-speaking Hispanic/Latino; Mandarin- or Cantonese-speaking Chinese American	Urban underserved Hispanic/Latino and African American	Underserved patients in Federally Qualified Health Centers and urban academic primary care practices

Table 2

Site Approaches to Addressing Lessons Learned

Theme	UCSF TabCAT-BHA	Einstein 5-Cog	Northwestern MyCog
Building clinical team engagement	• Advocate providers • Workflow assessment • Stakeholder engagement in paradigm implementation process	• Advocate providers • Workflow assessment • Stakeholder engagement in paradigm implementation process	• Advocate providers • Workflow assessment • Stakeholder engagement in paradigm implementation process
Referrals and care support	• Brain Health Consultation with dementia expert nurse or social worker • Resources for PCPs around next steps for evaluation and care including referrals	• Decision-trees and support • Resources for PCPs around next steps for evaluation and care including referrals	• Work with FQHCs on referral support • Support for provider-provider communication via the EHR • Resources for PCPs around next steps for evaluation and care including referrals
Electronic Health Record Integration	• SmartLinks used to populate EHR with test results in the form of text-based reports • Smartphrases used to streamline referral processes	• SmartPhrases with fields for data entry to summarize results and provide tailored recommendations for the PCP to consider in light of the 5-Cog results • Integrated provider decision-trees	• SmartPhrases and Links in EHR • Automated text-based reports within the AWV template • Flowsheets populating annual testing to capture relative decline
Refining approaches for when to initiate an assessment (i.e., identifying a concern)	• Paradigm triggered if a patient, care partner, or provider expresses a concern • Providers are encouraged to be alert for concerns and to query older and other high-risk patients for concerns	• Paradigm triggered by the patient or care partner after viewing a flyer in clinic • Paradigm triggered if a provider or clinical staff expresses a concern	• Paradigm triggered during the Annual wellness Visit using a short survey completed by the patient • Paradigm triggered if a patient, care partner, provider or clinical staff expresses a concern
Addressing the needs of diverse populations	• TabCAT-BHA designed to minimize cultural bias • Available in 18 languages • Bilingual medical assistants administer in patient's primary language	• 5-Cog designed to minimize educational bias and expanded to low-literacy populations • Uses picture sets to reduce literacy requirements • Bilingual research assistants administer in patient's primary language	• MyCog developed in a well-characterized and diverse populations • Work with FQHCs • Bilingual staff administer in patient's primary language
The role of care partners	• Care partner concerns can trigger the assessment • An optional care partner survey is part of the assessment • PCPs are encouraged to include care partners in diagnostic disclosure of MCI and dementia, and post-diagnostic care	• Care partner concerns can trigger the assessment • Care partner not required for assessment • PCPs are encouraged to include care partners in diagnostic disclosure of MCI and dementia, and post-diagnostic care	• Care partner concerns can trigger the assessment • Care partner not required for assessment • PCPs are encouraged to include care partners in diagnostic disclosure of MCI and dementia, and post-diagnostic care
Challenge of sustainability	• Minimal disruption in clinic workflow • Identifying approaches to finance EHR integrations, software maintenance and user support	• Minimal disruption in clinic workflow	• Minimal disruption in clinic workflow • Identifying approaches to finance EHR integrations, software maintenance and user support