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Health Care Innovation Awards (HCIA) Meta-Analysis and Evaluators Collaborative

Annual Report
Year 3

Prepared for

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EXECUTIVE SUMMARY

Section 1115A of the Social Security Act (added by Section 3021 of the Affordable Care Act [ACA]) authorized the Center for Medicare and Medicaid Innovation (CMMI) to test innovative health care payment and service delivery models that had the potential to lower Medicare, Medicaid, and Children's Health Insurance Program (CHIP) expenditures while maintaining or improving the quality of beneficiaries' care (42 U.S.C. 1315a). Under the law, preference was given to models that improved coordination, efficiency, and quality. In response, CMMI launched a number of tests of innovative models, including the CMMI-funded Health Care Innovation Awards (HCIA) supporting grassroots innovation to address locally perceived needs.

The first round of 108 awards was made in July 2012 for a 3-year period of performance. A second round of 39 awards was made in September 2014, but is not the topic of this report. These HCIA awardees proposed compelling new service delivery innovations that held promise to drive system transformation and deliver better outcomes for Medicare, Medicaid, and CHIP beneficiaries. The initiative was not prescriptive, but rather open-ended, with specific, shared goals of improving outcomes and reducing costs.

The Centers for Medicare & Medicaid Services (CMS) grouped the first round of awardees by similarity of objective into 10 groups that fall into 3 broad categories of intervention focus and awarded evaluation contracts to 7 frontline evaluators (FLEs). After an open competition, in 2013 CMS awarded RTI a meta-analysis contract to further analyze FLE data from a cross-cutting perspective. The purpose of this effort was not merely to look for an overall initiative impact, but to learn from all HCIA awardees which approaches are most promising, for which populations, and under what conditions. To address these questions required comparisons between groups and within and between specific subpopulations of interest. Given the heterogeneity of the awardees, innovations, and populations, there were opportunities as well as limitations to the impact analyses. The implementation analysis identified barriers and facilitators across various types of innovations, and what awardee or innovation characteristics related to successful implementation. In addition to understanding the common drivers of success across innovations, this work included analyses aimed at specific cross-cutting service delivery issues like developing strategies for pediatric populations and rural populations. This third annual report presents our final findings for the first round HCIA innovations. Two previous annual reports are available through CMS's website.[1]

Impact Findings. The impact of HCIA innovations on the four core outcomes were estimated by the project's FLEs. We present forest plots for estimated impacts on costs and utilization for each intervention. These show a mixture of positive (dissavings, the innovation was less successful than their comparator in reducing costs or utilization), negative (savings, the innovation was more successful than their comparator in reducing costs or utilization),

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[1] Year 1 Annual Report is available at https://innovation.cms.gov/Files/reports/hcia-metaanalysis-evalcollab.pdf; the Year 2 Annual Report is available at https://downloads.cms.gov/files/cmmi/hcia-metaanalysissecondannualrpt.pdf

and near zero effects (the innovation neither reduced or increased costs or utilization relative to comparators), similar to what has been observed in previous reports. Although a few awardees produced significant cost savings (and a few had significant dissavings), the mean effect of the HCIA award on total cost of care ranged from -$19 per beneficiary per quarter (ambulatory care) to -$160 (in only eight hospital settings), but none of the estimates were significantly different from zero. We observed similar results for three groups of special interest—innovations with a rural health focus, those addressing pediatric populations, and awardees who were granted no-cost extensions. Awardees' combined effects in these groups had results showing no savings or dissavings as a result of their innovation.

We tested the influence of study design factors by cataloging the methods FLEs used to create comparison groups and by reviewing intervention group recruitment protocols for risk of selection bias. We identified 35% of the evaluations as being at risk for selection bias. However, we found that the potential sources of bias—weighting vs. matching methods, patient recruitment problems, and covariate imbalance (discrepancies between beneficiaries and comparison group members)—had negligible impacts on the HCIA effects reported by FLEs. These results suggest that the difference-in-difference (DID) effects reported by FLEs are unlikely to have been systematically biased, either favorably or unfavorably, by the way comparison groups were constructed or by the way intervention groups were selected.

We expanded our investigation of structural, innovation, and implementation features that affected TCOC effects sizes in the ambulatory care innovations. A set of meta-regression analyses found several features (e.g., awardee was a for-profit organization) associated with either cost savings or dissavings (e.g., innovations with a rural focus or for Medicare beneficiaries). Of six types of innovation components that we evaluated (i.e., used health IT, used community health workers, medical home intervention, focus on behavioral health, used telemedicine, workflow/process redesign intervention), only innovations using community health workers (CHWs) were found to lower total costs (by $138 per beneficiary per quarter).

To obtain a more comprehensive understanding of the relationships between features of innovation implementation and outcomes, we created and estimated a path model that took selected features from the three meta-regression analyses and linked them to the two utilization measures and TCOC. Although several features were related to patient recruitment problems and turnover challenges, neither of these had a significant impact on the core outcomes. As in our last report, we found that hospital admissions had a much greater impact on TCOC effect sizes than did emergency department (ED) visits. This suggest that features affecting hospital admission rates are likely to have the greatest implications for expenditures, but there were no features directly related to hospitalization in the path model. We observed a strong, direct, and unfavorable impact on TCOC for awardees that were implementing new innovations compared with awardees whose were expanding the reach or scope of an existing program or initiative. Innovations providing services directly to beneficiaries were also associated with overall savings, but this effect was transmitted indirectly through ED use and other variables.

Implementation Findings. Implementation experience and effectiveness at the awardee level were assessed with an FLE survey (Annual Awardee Summary Form) administered at the end of the first and second years, and through thematic analysis of FLE quarterly and annual reports. By the end of the second year, over 80% of innovations were considered implemented to

a great or moderate extent by FLEs. Although most implementation themes identified in the first and second year were not mentioned in third year annual reports, common themes arose in the third year surrounding sustainability. The primary challenge for many awardees was securing reimbursement for non-traditional staff and services once CMS funding ends. Awardees whose innovations were integrated into the clinical workflow and who were part of large provider institutions were often able to secure internal funding to sustain all or part of their innovation, while other awardees sought external funding sources. Despite these sustainability challenges, the value of these innovations has been recognized by awardees and their organizations, and the vast majority of awardees reported that their innovations will continue, either in whole or in part, after CMS funding expired. To promote replicability and continuing fidelity, many awardees in the third year revised their training to make it less resource intensive to replicate.

Over the course of this meta-evaluation, many themes affecting implementation were identified and addressed by awardees. Some key challenges included cultural barriers (e.g., language barriers, lack of trust) for innovations delivering care or placing self-monitoring technologies in patients' homes. Vulnerable patients' needs for additional support affected recruitment and treatment maintenance. Several awardees needed additional staff to support innovation implementation, and faced challenges in recruiting those staff. For many awardees with new partners, the time necessary to build trust and to forge strong relationships was unanticipated.

Awardees adapted their innovations in response to these and other challenges, with several benefits emerging as innovations matured. In particular, implementing effective and workflow-friendly health information technologies (health IT) was a common challenge in early FLE reports. However, by the end of the second year of implementation, this challenge receded and the benefits of robust, well-integrated health IT infrastructures became apparent during the third year. Awardee cross-training; physical colocation of staff; and improved recruitment, hiring, and training practices improved staff satisfaction, retention, empowerment, and staff relations by the third year of the award.

Staff appreciation of CHWs was apparent in the third year as staff recognized their role in improving workflow, connecting with patients, and enhancing implementation. However, lack of reimbursement for CHWs, care coordinators, and new staff types was identified as a significant barrier to sustainability, and many awardees adopting these innovations have secured only temporary funding to retain these staff. Several awardees sought to join payment reform pilots or model tests—mainly accountable care organization (ACO) pilots—for sustainability.

Perhaps most importantly, clinical staff satisfaction with and support for the innovations increased markedly in the second and third years as the value of innovations in improving workflow and patient care became increasingly apparent. Independent of success on the four core outcomes, several innovations will likely be sustained in whole or in part on the basis of staff support and satisfaction.

Nonetheless, several challenges, often beyond awardee control, continue to affect the maintenance and sustainability of innovations. Few awardees used formal improvement or change management processes (such as LEAN, PDSA cycles) to monitor innovation implementation and such processes were adopted to a great extent by only 12 awardees (14.6%).

Awardees also reported existing organizational capacity interacted with their resilience to external challenges. For example, awardees with limited capacity in states that did not expand Medicaid programs were challenged by the needs of uninsured patients with health-related social needs, while awardees in states that expanded Medicaid struggled to meet the demand for services that access to insurance created. Local policies likewise occasionally supported innovations by reducing barriers to access or undermined innovations by failing to provide adequate housing standards to support patient health.

With innovations successfully implemented, many organizational leaders implemented plans to sustain all or part of their innovations once CMS support ends. Some awardees turned to state and federal funding streams for ongoing support while others secured financing from commercial health plans. For some awardees, sustaining their innovation was conditional on a demonstrated return on investment or documented improvements in patient health outcomes. However, for many, the improvements in staff satisfaction, workflow, and organizational stature was sufficient to continue the innovation. Most awardees in large provider institutions who had integrated their innovations into the workflow planned to sustain their innovation after the HCIA funding ended. For many awardees, their partners played an active and strategic role in sustainability by agreeing to adopt and integrate key innovation components into their existing work.

We had limited success identifying awardee or innovation features associated with successful implementation. Using qualitative comparative analysis (QCA; an approach based on set theory) and path modeling (a form of correlational analysis), we attempted to isolate innovation features associated with implementation success. QCA did not identify any necessary or sufficient features or combinations of features: all tested features were present in both effectively and ineffectively implemented interventions. The path model identified three key features independently associated with greater implementation success: awardees were more successful in implementing their innovations when innovations were implemented at a single-site, engaged in more staff training, and engaged in more robust implementation planning. For innovations implementing health IT, filling frontline staff roles and recruiting and retaining staff were significant challenges. Awardees implementing new innovations were somewhat less effective implementing their innovations compared to awardees building on or expanding prior innovations. Awardees implementing new innovations faced greater challenges in implementing health IT, and were somewhat more likely to hire technical, research, or administrative staff to support their innovation although these features did not significantly impact implementation effectiveness.