

Design of a Payment Decision–Support Tool for Coordinated Specialty Care for Early Psychosis

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A strengthened evidence base and earmarked federal funding have spurred the implementation of coordinated specialty care (CSC) for people experiencing early psychosis. However, existing funding mechanisms are insufficient and unsustainable to support population-wide deployment of CSC. This article describes the design framework of an innovative payment model for CSC that includes a bundled case rate payment and an optional outcome-based payment. To assist CSC payer and provider organizations in designing payment systems tailored to local preferences and circumstances, the

research team is developing a decision-support tool that allows users to define design choices and provide input. The authors document the analytical algorithms underlying the tool and discuss how it could be further developed or expanded for CSC and other behavioral health interventions that feature an interdisciplinary team of clinicians and nonclinical professionals, public education and outreach, patient centeredness, and a recovery orientation.

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Coordinated specialty care (CSC) consists of a set of evidence-based treatment practices for people experiencing early stages of psychosis (1). CSC is delivered by a multidisciplinary team of clinicians and nonclinical specialists on the basis of the principles of shared decision making and is aimed at maximizing recovery, including improving functioning and managing psychiatric symptoms. Community outreach is an integral component, given the program's emphasis on reaching individuals in the early phases of their illness. CSC implementation gained momentum in the United States following the research initiative at the National Institute of Mental Health known as Recovery After an Initial Schizophrenia Episode (RAISE). In particular, the RAISE Early Treatment Program study, a cluster-randomized trial involving 34 clinics in 21 states, found that CSC was associated with greater improvement in quality of life and psychopathology as well as greater involvement in work and school among individuals experiencing first-episode psychosis (2).

The RAISE Implementation and Evaluation Study (3) has demonstrated the feasibility of delivering CSC in community mental health center settings and has developed tools and materials to support future implementation. Probably more importantly, CSC implementation was also spurred by the earmarking of federal Mental Health Block Grant (MHBG) funding ("set-aside" funding) to states to implement intervention programs for individuals with early serious

mental illnesses such as psychosis. Such set-aside funding amounted to 5% of the MHBG in the initial rollout in 2014 and was doubled to 10% in 2015. By late 2017, a study conducted by the National Association of State Mental Health Program Directors (4) identified 248 program sites of early intervention programs nationwide that received MHBG funding.

Despite the rapid dissemination of CSC, it has become apparent that existing funding mechanisms are not sufficient

HIGHLIGHTS

- Current funding mechanisms do not support population-wide deployment of coordinated specialty care (CSC) and are misaligned with its interdisciplinary approach, emphasis on public education and outreach, patient centeredness, and recovery orientation.
- A CSC payment design framework could include a bundled case rate payment to cover the costs of all or some CSC services and an optional outcome-based payment that provides incentives and encourages innovation for achieving CSC outcomes.
- A decision-support tool operationalizes CSC payment design with design choices and user input, thus enabling collaboration of payer and provider organizations and tailoring of payment design to local circumstances.

or sustainable for population-wide CSC deployment. Under the MHBG set-aside funding, state mental health authorities typically directed CSC provider organizations to bill Medicaid and commercial insurance for ongoing service delivery whenever possible. However, existing fee-for-service insurance billing opportunities are seriously misaligned with CSC in at least four ways. First, many services that are essential to the recovery orientation of CSC (e.g., supported employment, supported education, and peer-specialist services) are typically not covered by insurance (except through the Medicaid Home and Community Based Services provision in the Affordable Care Act) (5). Second, for CSC services with existing insurance coverage (e.g., medication management and psychotherapy), the prevailing payment rates are usually too low to support the intensive service needs of people receiving CSC. Third, activities that are not directed at individual clients yet are integral and essential to the operation of a CSC team (e.g., community outreach and education, team operation, and staff supervision and training) are not billable (6). Fourth, fee-for-service billing, known to have strong incentives for volume rather than outcomes of care, may be especially detrimental to CSC because it discourages tailored and innovative service delivery (thus increasing client dependence on the system rather than promoting independence). It also discourages investment in team building, public education and outreach, and client and family engagement, all of which are integral CSC components.

CSC teams around the country continue to use a patchwork approach to financing (6, 7), and a consensus has emerged in support of a payment model that bundles and comprehensively covers the entire package of CSC services (6, 8). Of note, the Medicaid Accountable Care Organization of Marion County, Oregon, established a per-client, per-month (PCPM) bundled case rate for CSC in 2016. More recently, CSC programs in Philadelphia now receive a case rate payment from the local coordinating organization of Medicaid behavioral health benefits. In addition, CSC programs in several states (e.g., Maine and Illinois) are in discussion with Medicaid or commercial payers for the possible adoption of a case rate payment; at least two CSC programs in two different states (New York and Oregon) currently leverage the bundled, prospective payment of the federal Certified Community Behavioral Health Clinic Demonstration to cover the costs of their programs (9). CSC programs varied in terms of the specific treatment models adopted, services provided, and the credentials, time, and cost of time of professionals composing the team (4), making it necessary for payer and provider organizations to conduct local and collaborative decision making about a case rate payment. CSC teams are overwhelmingly community-based behavioral health provider organizations and typically have limited resources or experience in payment contracting with insurance entities. Furthermore, because CSC is a new treatment approach, payers may need assistance determining the specific design of the payment, including payment rates.

In this article, we describe the development of an interactive tool to support collaborative decision making by payers and CSC providers. We document the design framework of our tool and the analytical algorithms developed to calculate payment rate(s) given user choices and input. We discuss how this decision-making tool may be further developed or customized to support payment and financial planning needs for CSC. Finally, we discuss caveats that users should bear in mind when interpreting results from this tool.

TOOL DEVELOPMENT

Design Framework

Frank et al. (10) proposed a multipart payment model for CSC that contains a bundled case rate payment (covering case identification, client engagement, and retention), a per-service component (covering CSC services delivered to specific clients after enrollment), and an outcome-based payment that is financed by withholding a portion of the per-service payment (to mitigate perverse incentives associated with the per-service payment) and rewards CSC provider teams for achieving prespecified outcome targets.

To facilitate payment decision making reflecting local preferences, existing payment mechanisms, and CSC service delivery, we adapted Frank and colleagues' (10) framework in the following ways. First, we made the bundled case rate payment a "must-have" component but allowed decision makers to decide what types of CSC services should be bundled and covered under the case rate payment. This design reflects the general consensus that a bundled payment is aligned with CSC implementation but also affords local stakeholders the flexibility to tap into existing payment mechanisms for selected CSC services (e.g., services delivered by licensed clinicians that are usually most readily reimbursable), if so desired. A common issue with CSC financing is that supported employment, supported education, peer-specialist services, and other services provided by nonclinicians or nonlicensed providers cannot be billed to insurance under the existing payment mechanisms and rules. By allowing decision makers to bundle these services into the case rate, our payment model may maximize the chances that these nonclinical services be covered in CSC (11).

Second, we made outcome-based payment an optional component to allow for stakeholder flexibility in deciding whether and when to start holding provider organizations accountable for client outcomes. In the early stage of CSC implementation, the priorities of many provider teams are team building, community outreach to establish robust referral sources, and team workflow. It might make more sense to institute an outcome-based payment at a later phase. In addition, in our model, the outcome-based payment is financed by withholding a portion of the case rate payment (as explained in the following) and is paid out for each client who achieves a prespecified outcome in a given reporting

period. This is in contrast with the common “all-or-nothing” approach in which providers receive the incentive payment only if a measured outcome of the entire patient panel crosses a threshold (12). This all-or-nothing approach provides little incentive for incremental improvement for providers whose performance is either far below the threshold or above the threshold. Moreover, with the small panel size in CSC (typically <50), mean outcome measures of the panel have low reliability and, therefore, subject provider teams to substantial risks.

Third, our design framework lets the local payers and providers decide on sources of financing of services not covered under the bundled payment, thus making a hybrid model possible. Figure 1 illustrates our framework.

CSC Payment Design Choices

As shown in Figure 1, within each component of the payment model, we specify design choices that allow decision makers to tailor their payment models to local preferences and circumstances. The only choice for the case rate payment is the type or types of CSC services covered by this component. We followed a study conducted in New York State (13) and grouped all services into four categories: clinical services directly involving a client (or the client’s family members) in an individual or group setting and typically provided by licensed clinicians; supported employment and supported education services and peer-specialist services directly involving or directed toward a client and provided by non-clinician specialists; care or case management services involving or tied to a specific client, including care coordination with the client’s non-CSC providers; and administrative and team operational tasks, which may or may not be tied to specific clients and include scheduling, documentation, community outreach and education, staff training and supervision, and other ongoing tasks to support the operation of the team. This grouping reflects differential availability of existing payment mechanisms, with “clinical services” associated with the greatest availability, two middle groups associated with rare but some emerging payment mechanisms (e.g., the Medicaid Home and Community Based Services [5] and Health Homes [14] provisions), and the “administrative and operational tasks” associated with almost no systematic, insurance-based payment. By allowing users to select among the four types of CSC services, we afforded decision makers the flexibility of combining existing payment mechanisms with the case rate payment to support CSC.

Under outcome-based payment, we provided two design choices. One is concerned with the outcome measures that CSC teams will report on and be held accountable for. The three outcomes indicated in Figure 1 reflect important recovery-oriented goals of CSC but are not exhaustive of all client outcomes that local decision makers may deem important such as, for example, the achievement of independent living. The second design choice under outcome-based payment concerns the amount of funds available for

outcome-based payment, operationalized as a percentage of the total case rate payment. This “withhold” approach arguably provides stronger incentives for achieving a given outcome target, a behavioral economics principle known as “loss aversion” (14). An additional advantage, from the perspective of the payer, is that it sets a cap on the total payment (case rate and outcome-based payment) and thus eases budget planning. However, CSC providers will likely perceive such a design as penalizing, because, as long as their performance is not perfect, they would receive a lower payment than that received if outcome-based payment were not adopted. To better align incentives, we incorporated a larger markup for the case rate payment if an outcome-based payment is selected, as detailed in the following.

Key Premise: Cost-Based Payment Rate

A major premise underlying the payment design was that the case rate payment needed to reflect the costs of delivering evidence-based CSC. Thus, to estimate the case rate payment, the first step was to estimate the costs of CSC service delivery and team operation. Because the makeup of the CSC team (in terms of roles and professional credentials of its personnel) and the costs of staffing the team may vary significantly, the payment design tool needs to collect data on these specific details to support a tailored payment rate. A screenshot from our tool that solicits such information from the user is available in part 1 of an online supplement to this article. In addition, the tool collects data on the (average) fringe benefit rate and indirect cost rate that will be applied to the direct costs of staffing the team to derive total costs. Our tool then calculates the costs of delivering the CSC services to be covered by the case rate.

Analytical Algorithms

For each client engaged in a payment period (e.g., a month in a PCPM case rate), a fixed or flat case rate is calculated by first estimating the cost of operating and staffing the CSC team to deliver CSC services covered by the case rate and then dividing by the number of clients receiving services (i.e., CSC team caseload):

$$\text{PCPM case rate (\$)} = \frac{(\sum_j w_j \text{FTE}_j) \times S \times m}{\text{CSC team caseload}}$$

where j indexes the types of professionals (by credential) who make up the team, and w_j is the wage rate, and FTE_j is the full time equivalent(s) pertaining to credential j . S stands for the share of the total operating costs of the CSC team accounted for by the types of services to be covered under the case rate payment; S needs to be empirically estimated. Our data source and approaches to estimate the shares of total costs accounted for by different types of CSC services are described in part 2 of the online supplement. m stands for a markup factor (e.g., 1.10) that we apply to the cost estimate to provide a small margin to account for CSC-related costs not captured by the estimated costs of team staffing.

As described earlier, if the decision makers choose to include an outcome-based payment, they also decide on a proportion of total case rate payment that is “withheld” and made available for outcome-based payment. For each client who achieves an outcome target (e.g., no psychiatric hospitalization or emergency department visit during a reporting period), the provider team is expected to receive the following outcome-based payment (R_O):

$$R_O = \frac{\text{Total outcome \$}}{n_o \times N_o}$$

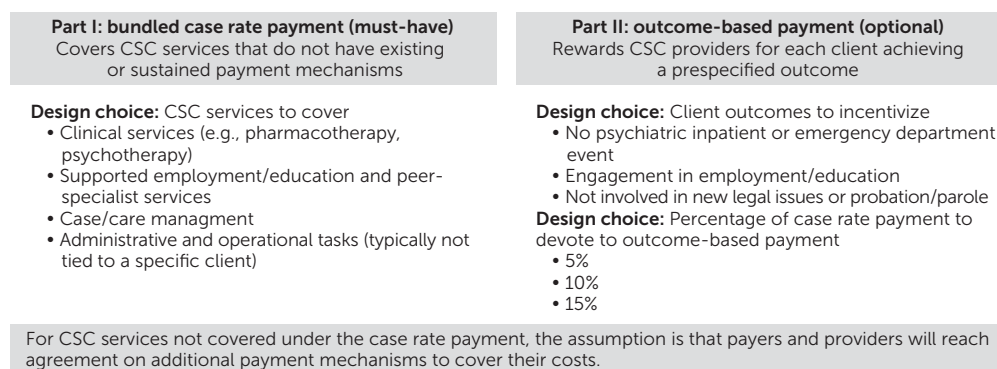
where n_o is the number of outcome targets selected, and N_o is the number of clients eligible for outcome-based payment over the reporting period. N_o is usually smaller than the team caseload because stakeholders may decide to exclude clients who are newly enrolled in the program (e.g., enrolled within the first 3 months) in determining outcome-based payment, because the provider team has had limited time to influence the outcomes for these clients. Our tool then estimates the total outcome-based payment that a provider team is expected to receive over a reporting period by generating a panel of simulated clients and their outcomes. Our data source and approaches to estimate the total outcome-based payment received by a team over 12 months are explained in part 3 of the online supplement.

For illustrative purposes, we present two scenarios of payment design and estimation based on the analytical algorithms outlined in part 4 of the online supplement. The two scenarios differ in the types of CSC services covered under the case rate payment but are identical otherwise. As shown, the PCPM payment rate was estimated to be \$1,619 per month if all four types of CSC services were covered under the case rate payment and \$802 per month if the case rate payment covered all but “clinical services.”

User Testing

For our tool to support real-world payment decisions, it must be suited to the needs of the target user groups and perceived as intuitive and easy to use (15, 16). Therefore, as part of the development process, we conducted user-centered design sessions with key informants from the payer and provider communities, by using a prototype of the tool. In several cases, these interviews have also informed important decisions about the algorithm. For example, interviews with CSC provider teams indicated that resource intensity in CSC service delivery often does not present the

FIGURE 1. Components and design choices of the coordinated specialty care (CSC) payment system



type of regularity as that seen in collaborative care (17): once enrolled, it might take months to fully engage clients with CSC. Moreover, as is typical in psychosis, clients may experience ups and downs throughout their tenure in the program and may therefore require a changing intensity of services. This qualitative input helped us decide against a variable case rate reflecting a dichotomy between the acute and the maintenance phases of services. In the next phase of tool development, we plan to conduct user testing by engaging payer and provider partners in the same testing session to specifically assess the utility and feasibility of the tool to facilitate stakeholder collaboration.

DISCUSSION

This article describes the design framework of a payment model for CSC and documents the analytical algorithms underlying a decision-support tool for CSC payment design. This tool answers the need to tailor payment design to local circumstances and preferences. Meanwhile, in this beta version of the tool, we deliberately limited the number of scenarios and options to facilitate user adoption. Therefore, we anticipate that tool development will be an ongoing and iterative process.

We propose several ways by which the payment design and the tool could be further developed. First, a need might arise for multiple case rate payments to fully support CSC. Before clients formally enroll in CSC, teams usually spend substantial staff time engaging prospective clients and families, suggesting a potential need for a one-time payment for the engagement phase of a client who may or may not ultimately enroll in CSC (Vinod Srihari, personal communication, December 16, 2019). Moreover, there may be a need for a case rate payment for ongoing but often less intensive care after the initial 2-year CSC (often referred to as a “step-down” phase) as CSC teams and their clients develop a rapport and a mutual desire to continue the clinical relationship. Another emerging need is in regard to clients who have not yet been given a diagnosis of psychosis but who exhibit signs and symptoms indicating a high risk for psychosis, often referred to as the *clinical high-risk group*.

Several teams around the country operate programs for clinical high-risk clients in parallel with their CSC programs and have relied on either insurance billing or grants (18) to support these programs. The tool we have developed for CSC can be readily adapted to meet decision-making needs for these additional payments.

Second, depending on local preferences and feasibility of outcome measurement and reporting, our tool can be adjusted to incorporate a different choice set of CSC outcomes than that proposed in the present tool, as long as data on the joint distributions of these outcomes exist to support the simulation. Although the present tool divides total funding available for outcome-based payment equally among selected outcomes (thus effectively assigning the same weight to all outcomes), the tool can be adjusted to assign various weights to outcomes on the basis of consensus reached in local stakeholder discussions.

Several features of the tool convey fairness and transparency to facilitate shared decision making. Examples include the cost-based approach of calculating the case rate and the upward adjustment of a case rate payment when an outcome-based payment is included. On the other hand, we tried to limit risks to payers by adopting a “withhold” approach in defining the outcome-based payment. More important, the tool operationalizes the payment design around design choices and user input so that payer and provider partners can collaboratively alter design choices (e.g., outcomes to be incentivized) or input (e.g., makeup of the CSC team) and compare resulting payments. Although the idea of conducting “what-if” exercises presents strong face validity and is endorsed by the (small number of) payers and provider teams we spoke with, it remains to be empirically tested with user tests that engage payer and provider partners.

Our tool does not support all aspects of the decision to design and operationalize a payment model. Specifically, conditions by which provider teams receive the case rate payments are left undefined and are beyond the scope of this tool. These conditions may include program certification, structural requirements (e.g., provision of key CSC components), client-level requirements (e.g., eligibility criteria for enrollment and continued services) (8), and a clear and operational definition of engagement in CSC in a given month to receive the PCPM case rate. They may also include ongoing program fidelity, patient outcome monitoring, and reporting processes, as well as, in cases when an outcome-based payment is adopted, operational definitions of outcome targets (in terms of denominator, numerator, reporting period, etc.). The tool also does not dictate how the CSC team should be staffed but rather assumes that CSC staffing would be an outcome of discussion among key stakeholders such as CSC payers, providers, and regulating and credentialing agencies. Given the low incidence of early psychosis relative to other common mental health conditions and CSC’s intensive resource requirements, policy makers and mental health administrators need to plan for and

determine the number and geographic distribution of CSC teams needed to meet population needs. Existing tools can be tapped to support such decisions (19).

Several limitations pertain to the underlying algorithms of the tool. First, several key parameters—for example, allocation of total team operation costs to different types of CSC services and the joint distributions of CSC outcomes—were derived on the basis of data from New York State’s CSC implementation known as OnTrackNY (www.ontrackny.org) (see parts 2 and 3 of the online supplement). Systematic and coordinated efforts in New York ensured the high quality of the OnTrackNY data, which reflect the experience of a large number of teams (23, as of January 2020) with diverse geographic locations and patient populations. Nevertheless, they may not generalize to the experiences of CSC programs in other parts of the country. To the extent that data reflecting local CSC experience are available, they can be integrated into the present tool to better support local decision making. Second, although our algorithms tried to take into account staff time on community outreach and team operation that is not tied to a specific client (see part 2 of the online supplement), lack of empirical data in this area may have led to underestimation of the proportion of total costs devoted to these activities. More systematic data collection on those costs will inform future refinement of the tool.

To sustain implementation of CSC in the context of competing priorities of mental health programs, many critical questions remain, including the ultimate effectiveness of CSC models, the scope of services necessary to achieve an effect, and funding sources to support its ongoing implementation. The tool and approach outlined in this report do not directly answer these questions but are meant to support decisions in allocating limited resources.

Implications of our work may go far beyond payment for CSC. Many behavioral health interventions are team based; require substantial public education and outreach; use patient centeredness and, therefore, tailored interventions; and are recovery oriented. The design framework and the analytical approaches we describe here can be readily adapted to support payment innovations for these programs. Furthermore, with its flexibility and expandability, our payment design framework points to a future research agenda: payment designs with different design choices (e.g., a case rate covering all vs. some of the services) or with varying complexities (e.g., two case rate payments to cover two phases of treatment vs. a single case rate payment) can be tested in experimental or quasi-experimental setups. Process (e.g., intervention fidelity) and patient outcomes can be compared across different designs to provide inferences.

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