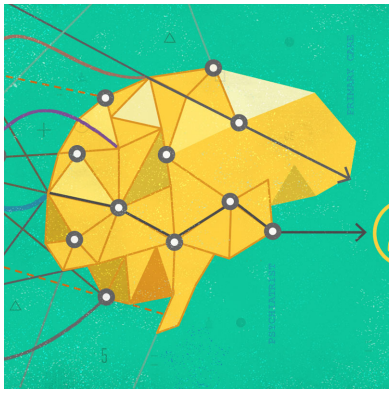
NEJM Catalyst | Innovations in Care Delivery

IN DEPTH

Designing for Value in Specialty Referrals: A New Framework for Eliminating Defects and Wicked Problems



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Vol. 2 No. 6 | June 2021

DOI: 10.1056/CAT.21.0062

Defects in care, including errors, oversights, and inefficiencies, cost more than $1 trillion annually inthe United States. While health systems are increasingly focused on eliminating defects, traditional approaches to quality improvement may not be sufficient. Particularly stubborn are aggregated defects. Each one arises as a solution to a specific problem, and they accumulate to create barriers that are remarkably complex and challenging to dismantle. Here, the authors propose a new framework, Designing for Value, that applies design-based thinking to prevent these complex, "wicked" defects. This framework seeks to move beyond simply eliminating defects and instead reimagine processes and care pathways for providers and patients alike that offer exceptional user experiences. The authors apply this paradigm to a specific "wicked" problem in our health system: primary care referrals to psychiatry. The authors share their initial results, consider future directions and implications, and explore how this paradigm could be applied to other disciplines for specialty referral.

No one sets out to design defects. Rather, defects typically appear as byproducts of well-intentioned solutions to other problems that optimize the part while compromising the whole. For example, waiting rooms, one of the least loved areas in health care, largely remain unquestioned as a necessary evil that helps feed a ready supply of patients to providers like staging materials in a factory production line.[1] Although they theoretically help caregivers be more efficient, they make the patient feel like a cog, rather than like the center of a holistic care experience.

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Defects in health care are often "wicked"; that is, they involve many interdependent factors that are systemic, incomplete, dynamic, and difficult to define.[2] Wicked problems are not merely complicated or technical, solved by the simple application of logic or computational power. Rather, they are complex, involving contested and competing human values.[3] In the case of designing for the elimination of waiting rooms, the crux of the issue had to do with different value systems: fee-for-service versus value-based mechanisms of reimbursement and caregiver-first versus patient-first models of care. What values and whose interests are prioritized, often implicitly, at the expense of others?

Simplistic attempts to solve wicked problems lead to other, new problems. Workarounds for specific problems at the local or first-order level often produce larger second-order problems, leading people to develop more workarounds.[4] All these workarounds are defects, and they become barriers to change. We then organize our systems around accommodating the defects rather than eliminating them, creating chronic frustration for both providers and patients. Over time, defect-riddled thinking, processes, and practices become institutionalized. They are no longer mere technical challenges, but social issues. In other words, they become wicked problems.[5] We redecorate the waiting room because reconfiguring the space and redesigning the workflow to eliminate it takes too much time, money, and thought.

The consequences of "wickedness" are dire. Defects in health care cost more than $1.3 trillion annually.[6] Current efforts at eliminating defects often focus on resolving the most pressing issues or helping the patients who have the most pressing needs. To truly eliminate defects and transform health care, however, requires us to design holistic, barrier-free care and avoid creating opportunities to introduce defects that we must later correct.

Defining "Designing for Value"

Design thinking is a generative approach. It not only reduces inefficiencies, but also introduces novel solutions. It has been used successfully in health care to tackle wicked problems.[7] As defined by the Interaction Design Foundation, "design thinking is an iterative process in which we seek to understand the user, challenge assumptions, and redefine problems in an attempt to identify alternative strategies and solutions that might not be instantly apparent with our initial level of understanding."[8] That iterative process typically involves five key phases:

1. **Empathize** with the users of a process.
2. **Define** the users' needs, problems, and your own insights around them.
3. **Ideate** by challenging assumptions and generating ideas for innovative solutions.
4. **Prototype** rapidly to start creating solutions.
5. **Test** those solutions to illuminate how best to configure them.

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Value-based care was supposed to usher in an era of transformation. The adoption of alternative payment models and the resulting transformation have proceeded at a sluggish and uneven pace because of the numerous existing systems and processes that are inconsistent with, or actively opposed to, the objectives of value-based care. We must unwind and remake them in order to eliminate the intertwined wicked defects. Classic models for change do not provide the tools and processes necessary for such a dramatic dismantling and rebuilding. Design thinking aspires to more than simply reduce discomfort or improve efficiency; it seeks to recreate a whole product or process anew in a way that engages, delights, and transforms the entire user experience from merely acceptable to exceptional. Health care systems must design exceptional health care experiences in order to be truly transformative. The combination of design thinking and value-based care creates a process we call "designing for value."

In this article, we demonstrate how designing for value is applied to a specific wicked problem: the specialty referral process for behavioral health. While behavioral health has some unique issues, we believe this design can be broadly applied across all specialties.

Defects in Specialty Referral

Referrals from primary care to specialty care represent a critical pathway in the patient journey to wellness. As we move toward value-based payment models, high-reliability referral pathways will be of increasing importance in achieving better outcomes at lower cost.

Yet specialists report that referrals from primary care can suffer from inappropriateness of referral (i.e., problems that could be handled by primary care), ambiguity and burdens in making a referral, and incompleteness of information, often resulting in rescheduling the consult.[9,10] Meanwhile, primary care providers consistently report problems in connection with access to and communication from specialty care, as well as adequate time to manage chronic conditions.[11,12] Such widespread and visible defects in care require a wholesale reimagination of the entire experience for specialty referrals as opposed to a patchwork of minor improvements. However, a review of the literature turned up no instances in which design thinking was applied to the specialty referral process.

The "Wicked" Problem: Referrals to Psychiatry

At our institution, an integrated academic health system with $4.3 billion in annual revenue, a large ACO, 18 hospitals, and more than 350 primary care providers, we were confronted with a poorly developed referral process and relationship between primary care and psychiatry. During the early 2010s, our system had transformed from operating primarily as a large, urban academic medical center with a few affiliated community hospitals to a multihospital system spanning 16 counties and a large ambulatory footprint, with pointed growth in our primary care network.

> *"Nearly all of our psychiatric providers had carved out specialized clinical identities focusing on circumscribed patient populations (such as working with only bipolar patients or with only forensic*

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populations). This hyperspecialization left us with a small footprint for general psychiatry compared with the size of the population our system now served.

At the end of this expansion phase, however, the size and location of our ambulatory psychiatry workforce remained relatively unchanged and hyperconcentrated at our academic campus. Nearly all of our psychiatric providers had carved out specialized clinical identities focusing on circumscribed patient populations (such as working with only bipolar patients or with only forensic populations). This hyperspecialization left us with a small footprint for general psychiatry compared with the size of the population our system now served. Our psychiatric staff remained steeped in a culture that tilted strongly toward academic mission with little cultural investment in population management. The referral process represented a minority of psychiatry visits. Schedules remained filled, patients seen received high-quality care, and for decades, while it was not optimal, it was sufficient. The internal impetus for change was low.

Yet, during this time frame, our health care system also established a large footprint in value-based payment contracts. By 2018, our ACO had more than 500,000 unique attributed lives. Success in this space is driven by primary and secondary prevention efforts orchestrated largely through primary care. Rapid access to specialty referrals can prevent unnecessary hospitalizations and improve the management of complex, chronic disease. The new model creates multiple new imperatives: keeping care within the system (network integrity); aligning providers around improving outcomes; preventing unplanned care; and reducing cost.

System leadership asked that all departments develop mechanisms for rapid access from primary care. Psychiatry leadership understood that psychiatry referrals were of outsized strategic importance in a value-based world because behavioral health disorders associated with chronic complex disease, such as diabetes and heart failure, substantially increase costs. Anticipating this very issue, payers had already built quality metrics around screening for behavioral health issues. We expected this increase in screening to uncover far more mental illness and substance use disorders warranting treatment than had been the case under traditional payment mechanisms. Combined with the emphasis on adequate, timely treatment, this increase was likely to drastically increase demand for psychiatric services. Given the prevailing culture, resource distribution, and workflows, psychiatry was not in an easy position to respond to this new demand.

To build a solution, senior leadership designated the director of ambulatory psychiatry as project lead. That individual gathered a team of about 15 individuals that included psychiatric physicians and advanced practice registered nurses (APRNs), a psychiatric nurse, a psychologist, a licensed counselor, two intake workers, the department administrator, and several psychiatric residents. The project lead facilitated the design process while delegating tasks to different team members throughout. Once the prototype was developed, a smaller subset, including the director of ambulatory psychiatry as well as three residents, and the administrative lead for intake were responsible for implementation, in partnership with the director of our Primary Care Institute and with regular feedback from primary care providers using the prototype model.

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Designing for Value: Psychiatry Referrals

Empathize

To start, we recognized the need to understand different perspectives about how the system worked for each of the stakeholders. We needed to observe and understand the referral process and then gather feedback from four groups: psychiatric providers, primary care providers, patients, and psychiatric practice managers.

The existing process lacked a management system.[6] It failed to clearly define standardized goals and expectations and had poorly delineated and ambiguous roles. Because it lacked goals, it also lacked consolidated, clear metrics to determine whether those goals were being achieved. It had not been built or designed in any comprehensive or deliberate sense. Instead, it had developed organically over several decades, focused largely on engaging a narrow swath of patients with certain complex needs while failing to consider the problems of the general population, such as general depression and anxiety or substance use disorders. Solutions to specific problems or requests were applied like duct tape to address complaints from individual psychiatric providers, with almost no input from other stakeholders (primary care providers, leadership, and patients) who had no perspective on how the system could work and accepted poor access as an unavoidable cost of doing business.

The resulting accumulation of duct tape caused widespread defects in care. During phone calls to schedule appointments, patients had to undergo an interview process that, on average, took more than 5 minutes and resulted in a nearly 50% call-drop rate before an appointment was scheduled. When patients completed the interview, they were then often told that an appointment with the right provider was months in the future. Primary care providers received no information related to the referrals; neither notes nor appointments were even visible to them in the electronic medical record (EMR), so they were unaware of whether or not a referral had been completed. Duplication of effort was common, with patients seeing multiple psychiatric providers across different organizations, while cutting primary care out of the process when primary care physicians could have comanaged many issues. Despite all this, psychiatric providers still regularly had patients in their schedule that they perceived as poor fits for their scope of work. The resulting system was one that regularly frustrated all stakeholders. This system was not designed to achieve a larger purpose and worked well for no one. Yet these defects in the system were largely invisible, and performance was accepted as "the way things are done around here."

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Despite the frustrations with the system, psychiatric providers were leery of any change they feared would further erode their independence and autonomy. Many providers verbalized

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concern that their area of expertise would be devalued and minimized in service of an uninspiring general practice. Psychiatrists had developed identities tied to their subspecialty area and feared that deviations from that position would tie them up with uninspiring work that would distract from their academic mission. Additionally, they worried that anything short of a highly precise match between patient and provider would lead to patient frustration at having to come back to see the "right" provider, potentially months away.

Primary care providers had entered into this large integrated health system in part to gain access to specialty care that had been elusive when they were independent. They identified psychiatry as among their biggest pain points. Yet the referral process in place provided no advantages and was often more frustrating than the arduous work of referring to independent private psychiatrists. Most of the primary care providers became disillusioned quickly, and many abandoned using the process at all.

Patients were frustrated by what they perceived as burdensome hurdles just to get in and talk with someone. Complexity in everything from scheduling, to parking, to patient instructions were clear pain points. They wanted simplicity and clarity, and rapid access to help resolve their mental distress was a high priority.

Practice managers were caught in the middle, constantly trying to balance the conflicting demands of multiple parties by adding increasing layers of complexity and bureaucracy to prop up a rickety system for sorting patients to the right providers. They welcomed the idea of trying something new, so long as they were not blamed for the failure.

In summary, we had a system largely designed around subspecialty psychiatric care that met none of the stakeholders' needs.

Define

On reflection, we generated some key insights around stakeholder needs.

Psychiatrists wanted autonomy and inspiring paths for career growth, yet they recognized the defects in the current system and endorsed trying something different.

Primary care providers valued efficiency, clarity, and speed. They wanted one-click referrals, rapid access for their patients, and clear, easy-to-digest communication routed back to them when the referral was completed. To realize that vision, they expressed a clear willingness to participate in comanaging patients' behavioral needs if they were provided the right support and guidance.

Patients wanted rapid access with empathetic psychiatrists. As most patients served by our system lived at least a 30-minute drive away, with many living closer to an hour away, long commutes were significant problems that we expected would be a major barrier. Yet, to gain rapid access to good psychiatry, patients were willing to travel long distances, provided that their course of care would be time limited.

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Practice managers, seeing the flaws in the system up front, were happy to try nearly anything different, as long as their lives did not get more difficult.

Ideate

Overall, we aimed for a defect-free process, applying a common framework for eliminating defects[13]:

1. Define what a defect-free, high-value referral process looks like and align stakeholders around that vision (Figure 1).
2. Identify key metrics that drive value and build a dashboard that illuminates defects in value.
3. Redesign the system to make referral easy, empower providers and staff to build the new referral system, and motivate them to make changes that eliminate defects and drive value.

With that in mind, our team identified a set of principles to guide the redesign of our consultation process, which we framed as "how might we" statements (Table 1). We believed that all of these needs could be met with one standardized process that was organized around patient needs and anchored by primary care.

This redesign required us to overcome certain ingrained thinking.

First, we needed to highlight that access to psychiatry was a loop, not a destination. We knew that the shortage of psychiatrists in the United States meant that psychiatry must be managed as a limited resource and distributed efficiently to the areas in which psychiatrists would provide the highest value.[14] If care proceeded indefinitely (as has often historically been the case), then schedules would be filled with follow-up care, limiting access for new patients. During the Empathize and Define phases, we learned that primary providers were willing to participate more actively in care with the right input and support. We also learned that psychiatrists recognized the limitations of the current system and were open to trying something different. Taking those insights into account, we determined that the best design for the clinic was a structured, short-term consultation, with referral back to primary care whenever possible, as soon in the course of care as possible.

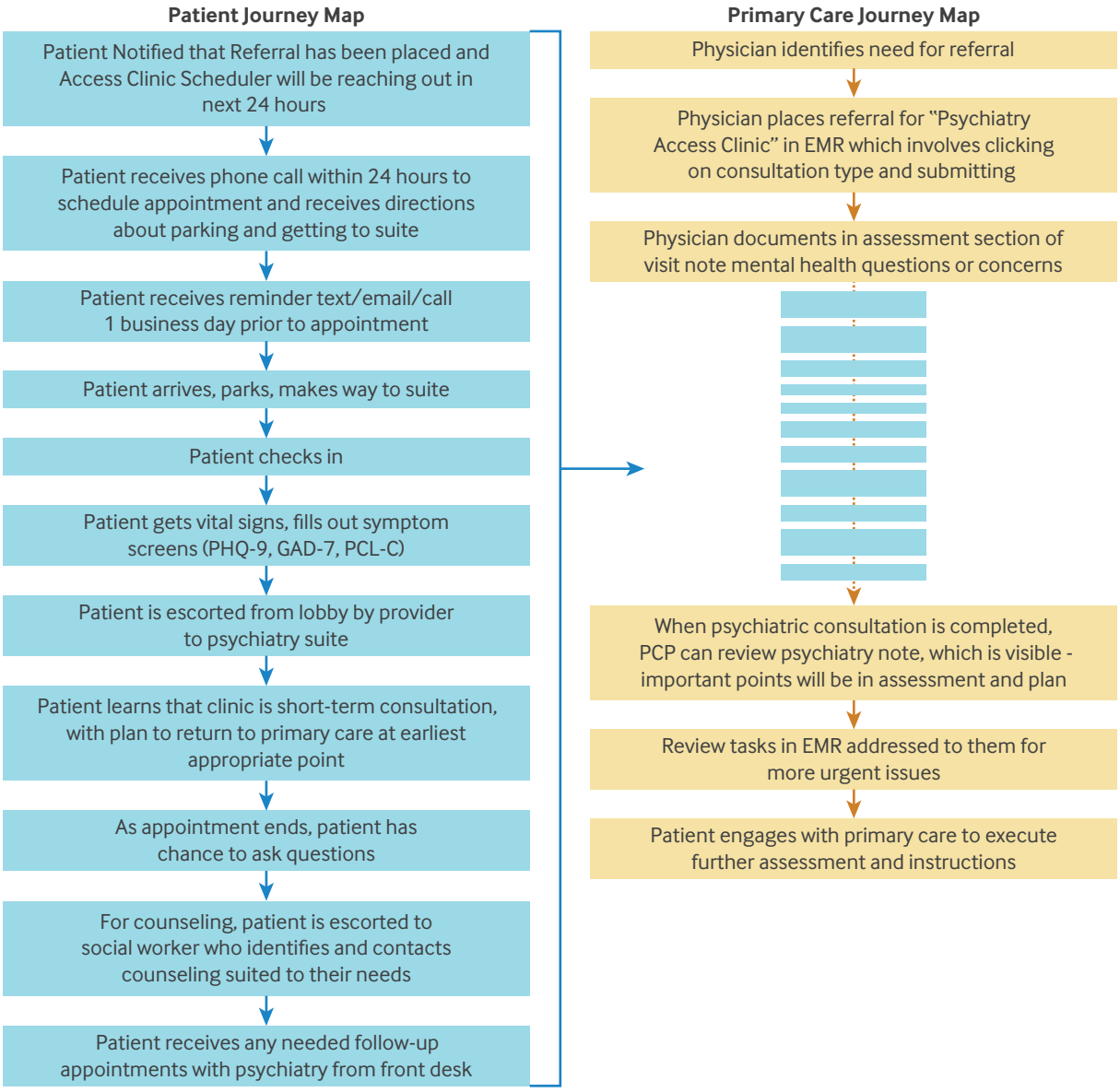
> *"During phone calls to schedule appointments, patients had to undergo an interview process that, on average, took more than 5 minutes and resulted in a nearly 50% call-drop rate before an appointment was scheduled. When patients completed the interview, they were then often told that an appointment with the right provider was months in the future.*

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FIGURE 1

The Patient's Journey

The patient's journey in a defect-free, high-value referral process. EMR = electronic medical record, GAD-7 = Generalized Anxiety Disorder 7-item anxiety scale, PCL-C = PTSD CheckList – Civilian Version, PCP = primary care provider, PHQ-9 = Patient Health Questionnaire-9.



Source: The authors.

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To be clear, this change meant that psychiatrists would be doing more work while generating less revenue. Even under current value-based payment arrangements, systems still generate their revenue primarily from fee-for-service billing, while shared savings are captured so far in

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Table 1. How Might We Design a Psychiatry Referral Process that…

1. Ensures individuals with behavioral health needs are seen within 7 days
2. Minimizes effort from primary care to make referral
3. Maximizes efficiency and simplicity in the patient scheduling experience
4. Makes the most efficient use of psychiatric provider time to best serve the population at large
5. Maximizes engagement of and comanagement with primary care
6. Creates high-value communication between psychiatry and primary care

Source: The authors.

the future as to be difficult to apply to psychiatry budgets up front. Psychiatry would still be accountable for finding a way to minimize the impact on our fee-for-service revenue. Hour-long psychiatric evaluations typically generate fewer relative value units and lower reimbursement than multiple follow-ups in the same hour (a glaring defect in our reimbursement systems that disincentivizes expanding access), while new patients generally generate the most work outside the appointment. Meanwhile, primary care providers are hesitant to manage psychiatric issues. Studies show that this reluctance is in large part because they lack the support needed to manage mild-to-moderate behavioral health issues.[15] Both sets of concerns needed to be addressed.

Second, to provide efficient care, psychiatry needed to rethink how it approached its course of treatment. Typically, patients are started on medications, then brought back in 2 to 4 weeks to see how they have responded. Medications are adjusted, and they are brought back again, and this is repeated until symptoms remit, side effects are managed, and/or the patient asks for termination. This pattern can lead to very long courses of treatment until things are "just right," which may never happen. Psychiatrists needed to get comfortable making the appropriate assessment, starting the course of treatment, educating the patient, and then prescribing an algorithm to the primary care provider to continue managing the issues at hand whenever possible. Both psychiatrists and primary care physicians had to agree that symptom remission may be observed and documented by primary care, and primary care physicians had to get comfortable measuring and documenting symptoms.

Third, psychiatry had to adjust its conceptualization of how documentation provides value, starting with the idea that psychiatrists' documentation would be visible to primary care. Until this point, psychiatry notes had been restricted, visible only to behavioral health clinicians, a precautionary measure that, although not required within our system under federal or state statutes, had in the past helped reduce fear and stigma for patients. Furthermore, documentation was seen as primarily serving the purpose of communicating to other behavioral health practitioners or cataloging nuanced thought for the practitioner's own review. Therefore, even unrestricted notes would have been difficult for non–behavioral health clinicians to follow. The functional goal of documentation needed to evolve to speak to multiple audiences, primary care included.

Finally, we in psychiatry had to get used to the idea that primary care providers, along with patients, were our customers and consumers of our referral process. We needed to focus on

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ensuring that the consumer experience for both sets of customers was outstanding by eliminating defects in the referral pathway to produce the highest value-to-effort ratio. In turn, the goal of the referral process needed to be the highest value outcomes for the population we served rather than the most efficient way of generating the right work for our own providers.

Prototype

The clinic workflow had five core features:

1. One-click referral
   We built a referral in the EMR specific to the psychiatric consultation clinic that required just one click to refer to the psychiatry consultation clinic. We identified three schedulers who tracked the specific referrals and called all patients within 24 hours of a referral being placed, although often within just a few hours. If patients did not respond after three calls, primary care providers were notified and asked to re-engage with the patient about the referral. We intentionally eliminated a step that most specialists consider necessary: a timely, clear request for consultation (though we encouraged primary care to add context if they felt it was important). Instead, we asked that primary care providers simply document clearly somewhere in their note the issues that were uncovered. This eliminated the need for them to double document, and we believed it would give us enough direction to guide our evaluation process, during which we would likely ask most of the questions that we typically asked during our standard intake/referral process anyway.

2. No diagnostic exclusions
   We developed a mantra to guide our approach: any referral is a good referral. For referrals that were unclear, we would do a thorough evaluation and then check back with primary care to ensure that their original concern was addressed. For patients who did not need our level of care, the referral gave us information to help engage and educate the primary care provider. For patients who needed more enduring care than that being provided in the consultation clinic, we could still get them in quickly, start medication, and refer to the appropriate psychiatric specialist or psychotherapist. While this created an inefficiency for the subset of patients who required complex, ongoing care, we believed the potential bumpiness of that transition would be far outweighed by the elimination of a burdensome triage process and rapid access to care initiation.

3. Course of treatment: one to four visits
   In order to maintain consistent short-term access, we planned for our intervention to last for no more than four visits, after which either patients' needs would be resolved and they could be sent back to primary care, or their needs would be identified as complex, and they could be referred forward to a psychiatric specialist. This was key to maintaining our commitment to access within 7 days, with the expectation that the majority of patients' needs would be able to be resolved within four visits, thus minimizing provider shifts.

4. Key communication embedded in the assessment/plan of note
   Rather than create unnecessary additional communications for primary care providers to sort through, we redesigned the assessment/plan section of our notes with the primary care

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provider in mind. Assessments would be clear and concise and never more than four sentences. Diagnoses and treatment interventions would be listed in bullet point format. Finally, any instructions to primary care would be laid out clearly in an algorithmic format at the end. By doing this, primary care providers would not need to sift through information until the patient re-presented and they reviewed the note. If more timely communication was needed, a message was sent through the EMR to the primary care provider, with a recommended phone conversation as needed (though ideally rare).

5. Primary care partnership
   In reality, primary care was already managing many behavioral health issues on their own; we simply made it a requirement that they be willing to take back the management of mild- to moderate-complexity cases, including those involving controlled prescriptions. If something proved too complicated and could not be resolved with brief communication, we would always be available for referral back in 7 days.

> *"Practice managers were caught in the middle, constantly trying to balance the conflicting demands of multiple parties by adding increasing layers of complexity and bureaucracy to prop up a rickety system for sorting patients to the right providers.*

For the first prototype, we were most interested in individuals who would enthusiastically participate in something new, rather than in influencing the broader audience of primary care providers to adopt the change. To that end, considering the science of innovation diffusion and using a participatory design approach that encourages codesign among participants, we sought "innovators" rather than early adopters.[16,17] We selected 10 primary care providers in partnership with primary care leadership who were open to sharing care with psychiatry, willing to try new things, and likely to lean into participating actively in the process. We met with each provider individually and in person, described our redesigned workflow, including the rationale for how we thought it would accomplish our goal of expanding access, and invited them to participate in regularly scheduled feedback by phone once a month.

Test

The clinic, located on the campus of the academic medical center of the system, opened for referrals in August 2018. It was staffed by residents from postgraduate years 2 through 4, with one supervising attending, spread across 2 half days. A total of 15 potential intake slots were spread across both days. The 10 primary care providers were asked to participate in the prototype model only and were oriented to the clinic principles and workflow by email and on a 30-minute conference call. Providers were selected on the basis of their relative proximity to the physical location of the clinic (no more than a 20-minute average drive) and on their history of high volume of referrals to the department of psychiatry.

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For the first 6 months, referral volume was very low compared with that which would have been predicted by provider referral volume prior to the testing phase. Participating providers did confirm that they were participating and happy with the process. The decision was made to increase the number of participating providers to 25 starting in March 2019. At that point, referrals increased to routinely fill at least 75% of the available slots. Over the next 12 months, we expanded the number of slots to 22 through the addition of 1 day of a psychiatric APRN and expanded to include an additional 19 primary care providers, for a total of 44 primary care providers, representing a little more than 10% of the primary care providers.

Results

Data were tracked during the 1-year period from March 1, 2019, to March 1, 2020. During the reporting period, 44 primary care providers referred psychiatric consultations exclusively to the consultation clinic. The weekly average number of evaluation slots was 22, which could be used for one new psychiatric evaluation or two follow-up visits.

Throughout the tracking period, no patient who wanted a referral within 7 days was unable to get an appointment within that time frame. A total of 676 referrals were made during the tracking period, resulting in 397 unique individuals seen, representing an average of 7.7 evaluations per week. The connection rate — from being referred to being scheduled to be seen in the clinic — was just under 60%.

The average course of treatment was 1.5 visits, and the median number of visits was 1. A total of 266 patients were referred back to primary care, representing 68% of unique patients seen, with the balance of patients being referred for longer-term psychiatric care. Notably, many patients were referred for counseling, whether or not they continued with psychiatry long term or were referred back to primary care for medication management. Of all patients returned to primary care, five were referred back to psychiatry within the tracking period. Care retention — defined as the percentage of individuals receiving psychiatric care from a system psychiatrist — increased from 61% to 65%.

Discoveries

As with any test during a design process, we had expectations about what would happen. Yet even when our expectations were met, we nonetheless discovered much more about the process than we had planned.

For the first 6 months of operation, starting in the fall of 2018, we received roughly one referral a week. We were in constant contact with enrolled primary care providers who were very happy with the model and somewhat at a loss as to why referral volume was so much lower than through the traditional process. To deal with this, we increased the number of enrolled providers until referrals filled 75% of our slots, which was how we settled on the number 44. Even as we were filling, though, the interprovider referral variability was vast, with a small percentage of primary care providers accounting for the majority of referrals. This suggests that not all

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providers are screening or as attuned to addressing issues related to mental illness as models suggest they should be, an area for future system-based work that will require overcoming provider concerns about the relative difficulty of dealing with mental health issues in a primary care setting. This model does not solve for that; as we will discuss later, collaborative care is likely the best answer for changing primary care culture.

> *"Psychiatrists needed to get comfortable making the appropriate assessment, starting the course of treatment, educating the patient, and then prescribing an algorithm to the primary care provider to continue managing the issues at hand whenever possible.*

We were surprised by the net increase in care retention of four percentage points despite serving only about one-seventh of the primary care providers. If we extrapolate this out, full implementation of this model across all primary care providers would easily increase care retention to above 90%, providing us greater control over managing costs and outcomes as a result.

We anticipated that it would be difficult to terminate care within four visits, whether sending patients back to primary care or on to another long-term psychiatric provider. However, to our surprise, the average and median visit numbers showed that the vast majority of referrals were for issues that could either be resolved within one to two visits or that presented as sufficiently complex as to warrant ongoing psychiatry within one to two visits. Even more surprising, patients as a group strongly preferred having their primary care provider manage as much of their care as possible when given the option of doing so, even with the knowledge that they would not have care adjusted as frequently. This pushed us to rethink our own conceptualization of how to partner with primary care providers and increase the level of complexity of algorithms for care, which we adjusted over the course of the year.

Mental illnesses are highly stigmatized, and patients seeking treatment for mental illness often value privacy and discretion related to that treatment. Our design related to documenting in an open note format required us to be up front with patients regarding the fact that primary care would be able to see their records and that it was important for them to do so in order to participate in care. We expected tremendous pushback on this point, but that pushback never occurred; not one patient refused care as a result, and no patient complained about this after their appointment. In fact, the response was generally one of enthusiasm that their primary care provider would not be in the dark about their treatment and issues. We were careful to document sensitive issues with as little detail as possible to ensure that privacy was maintained as much as possible.

Next, revenue generation was more than sustainable. Our model included some APRN time, which generates a margin compared with total cost, as well as a resident/attending model. Each attending staffed four to five residents and on average captured revenue for four evaluations and two follow-ups in a half-day period, better than even the most efficient provider could have accomplished on their own. Without a resident workforce, the direct care, being more heavily

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shifted toward evaluations and away from follow-ups, would have generated slightly less revenue. To give a breakdown of what this would cost, we standardized on the basis of the benchmark, time-based Medicare rates for follow-ups for 99214 ($130) and for evaluations for 99205 ($211). If we presume that a full-time equivalent (FTE) schedules 7 out of 8 hours a day (with an hour built in for necessary, unbillable activities) and that the traditional model involves two new evaluations in a day and our consultation model involves six new evaluations a day, then the revenue per day would be $1,722 for the traditional model and $1,526 for our model, representing just more than an 11% reduction in revenue. One could reasonably apply that percentage decrease to the payer mix for any particular clinic. Using these Medicare rates and extrapolating to 2.5 FTEs, the annual reduction in revenue would be about $117,500, compared with our system budget of approximately $4.5 billion, and would guarantee full access for a primary care workforce of 350 providers. This calculation does not include potential improved outcomes and reduced cost across other diseases, nor does it take into account the simpler intake process that reduces the total FTEs needed for scheduling.

Primary care providers reported that the referral process was incredibly simple, which led to quick adoption and consistent use. Furthermore, they reported being highly satisfied with three salient features: (1) rapid access; (2) a communication process that was simple and informative without overburdening their clinic day; and (3) clear algorithms and instructions that were easy to follow.

Patients strongly identified the rapid access as the biggest benefit (some patients were scheduled and seen within mere hours of the referral) and were often willing to travel significantly further than if they had had to wait for several weeks. While we encountered cases of patients who were frustrated about our refusal to prescribe or recommend continuation of a controlled prescription, that experience was relatively rare.

> *"We in psychiatry had to get used to the idea that primary care providers, along with patients, were our customers and consumers of our referral process. We needed to focus on ensuring that the consumer experience for both sets of customers was outstanding.*

Finally, the participating psychiatric providers — both residents and faculty attendings — reported being highly satisfied with the model. They enjoyed, more than they had expected, the opportunity to see a variety of cases, the time-limited course of treatment, and the partnership with primary care. While the lack of a specific consultation question occasionally presented some challenges, those challenges were far less common than most expected, and the central issue almost always became clear over the course of the evaluation. Most primary care providers were able to adequately point us in the right direction through minimal documentation in their own assessment and plan.

Yet, outside those participating directly in the model, clinical staff within our department remained skeptical about the value of changing the model and were no more interested in

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getting involved than when we started. Recruitment of providers, particularly physicians, remains challenging.

Future Directions

Extrapolating from the data we collected, we calculated that we could expand this model to cover the entire population of primary care providers with less than 2.5 FTEs of psychiatric provider time, representing about 5% of our total psychiatric workforce as currently constructed. While this may change as our screening process improves, the ability to manage such a large population with such a minimal investment of time came as a huge relief to us, and we believe it will be exciting to other systems struggling with access issues.

However, we also believed that this first prototype could be improved upon. Several key inefficiencies were noted in the early implementation of the clinic:

1. Patients were referred who were already linked with psychiatric care outside the University Hospitals Health system.

2. Patients were referred for psychiatric evaluation when they, in fact, only wanted psychotherapy or some other counseling service.

3. Patients were referred on the same day they were started on a reasonable psychotropic regimen, and because they were scheduled and seen at the next available appointment, this often resulted in a psychiatric evaluation that could only determine that the patient was tolerating the medication, thus requiring an additional follow-up appointment to assess its efficacy and make any adjustments.

4. Patients were referred to the consultation clinic even when it was clear from their chart that they needed long-term psychiatric care. They could have gone directly to a specialist and been spared having to complete an extra new patient evaluation at the clinic.

5. With roughly 40% of patients failing to connect for an initial appointment, many patients' needs were going unmet.

6. Many patients never finished their course of care in the consultation clinic and therefore never received an appropriate transition plan back to primary care or forward to ongoing psychiatric care. Thus, their needs were not met despite being seen in the clinic.

To address these challenges, a process is currently being piloted by which a psychiatrist reviews the chart of each new referral to identify opportunities for more personalized care. Based upon the results of this chart review, a social worker reaches out to the patient to discuss their concerns. For patients already engaged in psychiatric care, this process can reduce redundancy and provide an update to the primary care provider to guide their engagement with treatment. For those who are interested in counseling, appropriate referrals can be made prior to psychiatric evaluation, effectively shortening wait times to get into psychotherapy and

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eliminating an unnecessary visit and co-pay. If patients have recently started on a new medication or if their dose has been recently increased, the social worker can assess their adherence to their medication regimen, as well as any side effects. If the patient is tolerating the regimen well, then a follow-up in 4 weeks with psychiatry is more appropriate. Because of the social worker's unique skills, additional resources are often provided to the patient to help address psychosocial stressors, before the patient even sees a psychiatrist. Finally, patients likely to require long-term psychiatric care can be identified through brief chart review by the psychiatrist, and then the social worker can help them get linked with long-term, comprehensive care right away, perhaps using the access clinic as a bridge, if necessary. While this new process is still being evaluated, early results suggest that we can reduce unnecessary visits by 10% to 20%, creating an even more efficient, higher-value system.

These solutions, however, will not fully alleviate the final two issues. Even with a more user-friendly referral process for both primary care providers and patients, many individuals with mental health issues either failed to complete an initial appointment with psychiatry or failed to complete the necessary course of care. To fully meet the mental health needs of our population, specialty referral alone cannot be the only solution. Many needs are best met at the level of primary care.

Furthermore, while some needs might be better met through specialty consultation, many patients are unwilling, or have too many barriers, to engage with psychiatry directly. For these individuals, introducing the added pathway of psychiatric consultation is inefficient, unachievable, or both. In many cases, enhanced care situated directly within primary care is the right solution. For others, particularly those with complex social influencers of health or with complex and severe mental illness, alternative mechanisms of engagement may be most appropriate.

Several solutions emerged as the most appropriate next steps.

First, we started implementing the Collaborative Care Model for Behavioral Health.[18] This evidenced-based model furthers integration of primary care and behavioral health by embedding social workers directly into primary care practices to help comanage mild to moderate behavioral health issues in partnership with primary care providers, supported by psychiatrist consultants from a distance. This model refines formal referrals to psychiatry while also eliminating added steps that could increase the opportunity for defects in care and a failure to get needed treatment.

Next, we endeavored to explore the role of asynchronous electronic consultations for clearly delineated questions to address issues that could be resolved through provider-to-provider communication (like verifying dose changes or medication side effects).

> *"For patients who did not need our level of care, the referral gave us information to help engage and educate the primary care provider. For patients who needed more enduring care than that being*

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provided in the consultation clinic, we could still get them in quickly, start medication, and refer to the appropriate psychiatric specialist or psychotherapist.

Finally, for individuals with more complex and challenging needs, for whom psychiatric consultation was necessary but engagement was difficult, we adopted the model of clinical case management. Clinical case management is a model of care management traditionally applied in community mental health settings for individuals with severe mental illness, such as schizophrenia. It is a longitudinal, relationship-based model of care, in which a social worker partners with individuals who have complex health care and social needs and struggle to engage effectively in care and participate in adequate self-management. Rather than waiting for patients to come in for care, they reach out to patients, meet them in the community, then develop and execute detailed treatment plans to help improve their engagement in care and issues related to life quality, with the goal of improving their own ability to connect and self-manage.[19]

As of the writing of this article, we have included an additional 60 primary care providers with 2 extra days of psychiatric provider time and will be increasing to include all of our roughly 350 primary care providers by the end of summer, with a total of about 2.5 FTEs worth of provider time. Furthermore, because we were trying to address a structural deficiency, we did not design our model with the highest-need patients in mind or with cost and utilization outcomes as a primary goal. Our primary goal was to design a structural solution that would address process deficiencies and provide a template for managing outcomes in the future. To adequately impact outcomes, we must now build metrics that track processes for screening and engagement in care to ensure that individuals with mental health needs are having those needs addressed appropriately.

Expanding to Other Specialties

The lessons learned here are not confined to just psychiatry or behavioral health; they are applicable across all specialties in medicine. Indeed, if other specialties can enhance care retention significantly, they can both retain revenue from providing services that otherwise would go to another system and, more importantly, exercise a much greater degree of control over cost and outcomes in pursuing high-value care. Some might argue that psychiatric care is delivered in an altogether different manner with a unique set of providers. Yet most specialty care involves a range of different professionals who can become the primary source for therapeutic interventions (social workers or psychologists in psychiatry vs. physical therapists after surgery or dietitians for diabetes). All specialties struggle with inefficient referral pathways that delay care and frustrate patients and providers alike. All specialties struggle with poor back-and-forth communication that increases the risk of errors. All specialties struggle to achieve more direct collaboration on care, specifically helping to support primary care providers in managing issues that are more challenging. As value-based payment mechanisms emphasize outcomes and cost over volume, health systems around the country are recalibrating to eliminate low-value behaviors and incentives. Leveraging design thinking to place patients' needs at the center of the referral process, as demonstrated by our work here, can translate well to other areas.

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To that end, we shared the results we produced in behavioral health to other specialties, emphasizing the process of designing for value. While the tendency is to try and create a playbook that standardizes implementation, we must recognize the considerable differences across specialties and settings that necessitate embracing the design process as a means of reducing defects and solving wicked problems. Rather than simply identifying key metrics and holding individuals accountable for driving results, leaders must nurture and encourage change agents to explore new ideas, create communities and opportunities for sharing and collaborating in new ways, and relentlessly promote innovative success. Along the way, give people permission to fail: success cannot happen without breaking a few eggs. Confidence that failure will be tolerated, as long as it comes from earnest, thoughtful effort, is key to unleashing creative energy.

In this article, we must note another unexpected development. As mentioned earlier, new codes for Collaborative Care in Psychiatry have offered a new pathway for integrating care directly into primary care practices. As of today, those codes pay only for behavioral health care. This change does not obviate the need for an excellent specialty referral process for psychiatry; even systems with highly distributed Collaborative Care maintain high demand for specialty psychiatry referrals. So, as we have worked to merge those two pathways, we have been advertising Collaborative Care in Behavioral Health across our system as well. As other specialists noticed, they were actually surprised and excited, which lead to the development of collaborative care models for other specialties (specifically, the treatment of chronic kidney disease through specialized pharmacists and the management of diabetes through enhanced nursing and dieticians) that embedded streamlined referral processes to specialty care.

The response was overwhelming enthusiasm and led to the planning and development of access clinic pilots in gastroenterology, neurology, and ear, nose, and throat, among others. Each area is different and has its own unique challenges, but everyone was inspired to design for value. By maintaining patients' needs as central, each can succeed, and the value realized will be transformative.

Defects in care, rather than representing gaps in care, are often barriers to care that emerge as a result of intentional solutions to other problems. As these defects accumulate, they snowball into wicked problems. Designing value represents a novel framework for tackling and resolving such complex problems.

In this article, we demonstrated that designing for value in a specialty care setting can yield transformational results. Organizing behavioral health around patients' needs and anchoring it in primary care eliminated a host of barriers to care for patients and primary care providers at much lower costs while maintaining a rewarding body of work for psychiatric providers, themselves important participants of the process.

This first pass certainly did not result in defect-free care pathways, but it informed new directions to pursue in service of truly defect-free care, further demonstrating the impact of designing for value. Importantly, the lessons here can be applied to other specialties and across entire systems to help invigorate the transformation of health care that needs to happen in order to eliminate disparities and for the system to become truly value driven.

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Disclosures: Patrick Runnels, Heather Wobbe, Kipum Lee, Randy Jernejcic, and Peter Pronovost have nothing to disclose.

References

1. Chang S. Nobody wants a waiting room. NEJM Catalyst. February 6, 2019. Accessed March 20, 2021. https://catalyst.nejm.org/doi/full/10.1056/CAT.19.0014.

2. Interaction Design Foundation. Wicked problems. Accessed April 5, 2021. https://www.interaction-design.org/literature/topics/wicked-problems.

3. Buchanan R. Systems thinking and design thinking: the search for principles in the world we are making. She Ji 2019;5:85–104 https://doi.org/10.1016/j.sheji.2019.04.001.

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4. Churchman CW. The systems approach and its enemies. New York: Basic Books, 1979.

5. Lee K. From margin to institution: design as a marketplace for action in organizations. Design Issues 2020;36:5–19 https://doi.org/10.1162/desi_a_00610.

6. Pronovost PJ, Urwin JW, Beck E, et al. Making a dent in the trillion-dollar problem: toward zero defects. NEJM Catalyst 2021;2(1) https://catalyst.nejm.org/doi/10.1056/CAT.19.1064 https://doi.org/10.1056/CAT.19.1064.

7. Altman M, Huang TTK, Breland JY. Design thinking in health care. Prev Chronic Dis 2018;15:E117 https://doi.org/10.5888/pcd15.180128.

8. Interaction Design Foundation. What is Design Thinking? Accessed January 13, 2021. https://www.interaction-design.org/literature/topics/design-thinking.

9. O'Malley AS, Reschovsky JD. Referral and consultation communication between primary care and specialist physicians: finding common ground. Arch Intern Med 2011;171:56–65 https://doi.org/10.1001/archinternmed.2010.480.

10. McPhee SJ, Lo B, Saika GY, Meltzer R. How good is communication between primary care physicians and subspecialty consultants? Arch Intern Med 1984;144:1265–8 https://doi.org/10.1001/archinte.1984.00350180209029.

11. Byrd JC, Moskowitz MA. Outpatient consultation: interaction between the general internist and the specialist. J Gen Intern Med 1987;2:93–8 https://doi.org/10.1007/BF02596304.

12. Boulware DR, Dekarske AS, Filice GA. Physician preferences for elements of effective consultations. J Gen Intern Med 2010;25:25–30 https://doi.org/10.1007/s11606-009-1142-2.

13. Runnels P, Wobbe HM, Pronovost PJ. Eliminating defects in behavioral health treatment. Psychiatr Serv 2021;72:213–5 https://doi.org/10.1176/appi.ps.202000255.

14. National Council for Behavioral Health. The Psychiatric Shortage: Causes and Solutions. Accessed February 16, 2021. https://www.thenationalcouncil.org/wp-content/uploads/2018/04/Revised-Final-Access-Paper.pdf?daf=375ateTbd56.

15. Loeb DF, Bayliss EA, Binswanger IA, Candrian C, deGruy FV. Primary care physician perceptions on caring for complex patients with medical and mental illness. J Gen Intern Med 2012;27:945–52 https://doi.org/10.1007/s11606-012-2005-9.

16. Roberts JP, Fisher TR, Trowbridge MJ, Bent C. A design thinking framework for healthcare management and innovation. Healthc (Amst) 2016;4:11–4 https://doi.org/10.1016/j.hjdsi.2015.12.002.

17. Berwick DM. Disseminating innovations in health care. JAMA 2003;289:1969–75 https://doi.org/10.1001/jama.289.15.1969.

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18. Unützer J, Park M. Strategies to improve the management of depression in primary care. Prim Care 2012;39:415–31 https://doi.org/10.1016/j.pop.2012.03.010.

19. Kanter J. Clinical case management: definition, principles, components. Hosp Community Psychiatry 1989;40:361–8.

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