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## Quality improvement in action

# Creating value in depression management

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## ABSTRACT

**Background** In the current healthcare system in the USA, common mental health conditions are frequently undertreated. As a result, unacceptable disability, morbidity and mortality rates occur. Various stakeholders define, provide, monitor and may reward providers of mental health care, but based on differing interests and agendas. Examples of the implementation of evidence-based practice in general care, accompanied by changes in fiscal incentives, are rare outside of research endeavours.

**Methods** We review as a case study a Minnesota state-wide effort to introduce collaborative care into 80 primary care clinics in order to improve the outcomes of depressed patients. This effort has been named the DIAMOND project (Depression Initiative Across Minnesota, Offering a New Direction) and it may illustrate several key steps towards creating value at the interface between primary care and specialty mental health care. Outcomes were defined and will be examined for a three-year period from when the initiative began in March 2008.

**Results** To date the results are encouraging. All 80 clinics have introduced a new measurement tool into their practices, trained and hired care managers, and have developed an ongoing relationship with a psychiatrist. Over 4800 patients have been screened for depression, have received treatment and have been followed to ensure compliance and better outcomes. Remission rates (averaging 27%) are at levels comparable to research studies which have more stringent inclusion and exclusion criteria. Challenges including the loss of eligible patients are described.

**Conclusion** To create value in depression management, not only was a viable model required, but also a process for implementation and a structure for ongoing support of the model. The case study presented offers lessons that might be applied elsewhere toward creating value at the mental health and primary care interface.

**Keywords**: depression, care management, outcomes, quality, value

**How this fits in with quality in primary care**

**What do we know?**

Collaborative care models for the treatment of depression in primary care have been shown to be better than practice as usual in multiple published trials, yet most primary care practices in the USA have not implemented these models.

**What does this paper add?**

This paper explores an example of a successful implementation of an evidence-based model of care into multiple primary care practices across Minnesota, USA that engaged patients, providers, funders and employers. This is a demonstration of how a shared definition of value can be a powerful force for healthcare improvement.

## Introduction

Depression has a lifetime prevalence of 16.2%, making it one of the most common chronic illnesses in the USA.[1] Despite its prevalence, depression is often undetected and suboptimally managed.[2] Even though 75% of antidepressant prescriptions are written by primary care providers, routine collaboration between mental health providers and primary care involving depression screening and outcomes monitoring in these settings is rare.[3] Primary care providers are limited to what they can accomplish in 12 to 15-minute visits and (in the USA) are generally only reimbursed for face-to-face visits with patients, meaning that a depressed person must renegotiate the healthcare system repeatedly if there is no improvement following the first treatment. Lost income related to functional impairment (presenteeism, absenteeism), increased utilisation costs, disrupted family systems and suicide are just a few of the negative consequences of this unfortunate reality.

However, both effective and efficacious depression care models exist that have been shown to create symptom and functional improvements and to reduce utilisation costs.[4] Why, then, are they not widely adopted? This paper will describe how an evidence-based and effective model can be spread into multiple clinics in a wide variety of settings.

All parties (patients, practitioners, funders and employers) with a stake in obtaining the best health outcomes are interested in providing the most effective treatment for this chronic health problem; however, determining what is the most effective treatment for depression has been difficult. In research, efficacy trials of a treatment method for depression must have well designed measures of outcome. Response and remission scales, quality of life measures, functional assessment scales and healthcare utilisation costs are typical examples of data measures that validate a particular intervention or model of treatment for depression. Unfortunately most of these measures are too time intensive or costly to be widely applied by clinical practices. Practices rarely have population-based databases that might allow clinicians to see patterns in the outcomes of their patients. In place of outcome measures and clinical databases, practices typically seek process measures pulled together quickly to respond to the demands of regulators and funders who, in the absence of defined outcomes, may seek to control costs on the basis of process measures.[5] Such measures are easier to collect, but rarely have they been demonstrated to be linked to outcomes that would be meaningful to patients or providers. A shift to a system built on meaningful outcomes requires careful planning and attention to multiple dimensions, but such a system is critical to our achieving the greatest clinical outcomes for our patients.[6]

The National Committee on Quality Assurance has developed Health Plan Employer Data and Information Set (HEDIS) measures to compare outcomes for multiple chronic conditions. For depression, these HEDIS measures target treatment adherence with antidepressants and require a patient to be on an antidepressant for 84 days after receiving a new diagnosis of depression. However, a depressed patient may faithfully take an antidepressant for 84 days without experiencing any benefit if the antidepressant is the wrong medication for that patient, since clinical response, remission of symptoms and functional status are not routinely assessed. Providers may be apparently excelling in performance on process compliance and thus receive full accreditation for their services without evidence of a positive outcome for the patient. Although there are data suggesting that being accredited leads to better outcomes, we are unaware of any accrediting agency that examines whether implementation of any specific accreditation requirement actually results in improved quality, better outcomes or lower cost.

An ideal system of care would clearly provide the best outcomes possible. Whereas outcomes are an essential component of value in health care, there are other components. Porter defines value as quality of care through the duration of the condition's care

$$\text{VALUE (to all stakeholders)} = \frac{\text{Quality (outcomes of care, safety, service)}}{\text{Cost per patient over time}}$$

**Figure 1** Value equation

cycle, divided by the cost.[5] Value has been conceptualised as an equation[7] with variables that allow discrete measurement (Figure 1). These variables include quality as defined by safety and service, outcomes and cost. Along with poor clinical outcomes, an unsafe environment and slow or needlessly complex systems of care also decrease value. High-quality care with the best outcomes that is beyond the patient's financial means is of little value to the patient or the family. All aspects of value are important, but its components may mean more to one stakeholder than another. The challenge of coming to a shared definition of 'good clinical outcomes', 'safety' and 'service' as it applies to a particular health problem, while balancing these ideals against a reasonable cost, requires a process of dialogue, negotiation and determination to move forward, recognising that modifications to this process must be ongoing as treatment for depression evolves. In this paper, we will highlight the implementation of a well-researched model of care for depression in multiple practices throughout the state of Minnesota to illustrate how a process of negotiation around quality of health care can result in measurable and sustainable positive change in systems of care and in the health of depressed patients.

## Methods

The DIAMOND project has demonstrated significant improvements in depression outcomes across multiple practice environments in the state after the spread of an evidence-based model of care which has been shown to be better than practice as usual in a meta-analysis of 37 randomised controlled trials.[8] Beginning in 2006, the Institute for Clinical Systems Improvement (ICSI), based in Minnesota, began looking for a way to bring this proven model of care for depression into primary care practices across the state of Minnesota in a way that would be sustainable over time. The ICSI was established in 1993 as a non-profit organisation and it has grown to include over 60 medical groups and hospitals across Minnesota as members and seven major health plans as sponsors. Its purpose is to improve patient care in Minnesota through collaboration and innovation in evidence-based medicine. Negotiation and application of this well-researched model of care for depression in general practice required stakeholders to agree on common definitions of outcome, safety and service while at the same time addressing the cost of the care to provide sustainable value in care to those with depression.

The DIAMOND project was designed on the IMPACT model of depression in primary care;[9] Dr Unutzer is a consultant to the DIAMOND programme. Funder reimbursement for this model required the participating clinics to become trained and certified by ICSI to ensure the use and effect of the evidence-based IMPACT model. The elements comprising the DIAMOND project model of care include the following:

- standard and reliable use of the nine-item Patient Health Questionnaire (PHQ-9) for assessment and ongoing management of depression
- use of an evidence-based guideline and a stepped-care approach for treatment modification/intensification
- the development and use of a registry to monitor and track patients
- relapse prevention training for patients reaching remission
- the introduction of a trained care manager
- a formal relationship with a consulting psychiatrist.

The DIAMOND project was introduced into cohorts of primary care clinics in several collaborative waves of training and implementation, with systems development and formal training of care managers required for participation. Five waves of training were developed at six-monthly intervals, with each wave containing primary care sites (range 7–26) where practices had demonstrated readiness for change and the capacity to implement the components listed above. Patients were included if they were 18 years of age or older and had a diagnosis (made by primary care providers) of major depression or dysthymia, regardless of whether they had comorbid diagnoses. The only patients excluded were those found to have bipolar disorder. Treatment offered to any patient was up to the primary care provider and patient to decide, with input from the consulting psychiatrist and support from the care manager. The use of an evidence-based algorithm for treatment was emphasised (the ICSI algorithm for depression for primary care providers), but specific medications and therapy were up to the providers and patients to choose. Outcomes were compared across institutions and included several process measures (e.g. use of the PHQ-9, rate of engagement of depressed patients). The process measures chosen reflected the goal of improving outcomes by improving rates of response and remission of depression at six and 12 months.

To develop benchmarking and share best practices, outcome results were uploaded in a de-identified manner to a central database so that six- and 12-month response (defined as at least 50% reduction in PHQ-9 score from baseline) and remission (defined as a PHQ-9 score of five or less) scores could be displayed on a public website (Minnesota Health Scores, www.mnhealthscores.org). Clinics with higher scores on process or outcome measures were contacted to learn best practices to be shared with all.

The primary and most important outcome to patients, providers, funders and employers was remission of depression. All process measures were weighed in relationship to the extent that they measured a process that is critical toward the outcomes of response and remission. The consistent use of the primary outcome tool (PHQ-9), a practice's success at recruiting eligible patients into care management, the percentage of patients who dropped out of care management and the primary reasons for non-inclusion or drop out have become important process measures.

# Results

## Outcomes

As of March 2010, 4862 patients in 80 clinics had been activated in the DIAMOND model of care management. This turns out to be a relatively small percentage (20%) of those patients (24 294) who met the eligibility criteria (a diagnosis of major depression or dysthymia and a PHQ-9 of ten or more). Reasons for this low activation rate include the challenge of routinely gathering PHQ-9 data on all eligible patients (of those diagnosed with depression or dysthymia only 67% had an initial PHQ-9) and the lack of consistent insurance coverage for this service (a common reason for patients to opt out of care management).

A review of primary outcomes from March 2008 to March 2010 revealed that clinics in Minnesota not using DIAMOND (www.mnhealthscores.org) had remission rates of between 0 and 11% compared with between 7 and 51% for those using DIAMOND (Table 1). The amount of missing data in general practices outside the scheme was likely to be higher than for those using DIAMOND (where 58% of patients had six-month outcome data; Table 2). By way of contrast, in literature sources used to define benchmarks[10–12] the authors were able to obtain six-month outcome data on a larger percentage of patients, ranging from 76 to 91%.[10,11]

The loss of patients who meet eligibility requirements is a clear challenge as noted in Table 2. From an initial group of over 24 000 patients who were found to meet eligibility requirements, only 20% (4862) agreed to actively participate. Patients were lost because of deficits in implementing the screening instrument, the challenge of maintaining connection to patients by care managers and patients choosing not to participate.

## Safety and service

Suicide is the primary safety concern for those with depression.[13] A review of practices prior to starting the project revealed that many patients were waiting months for a psychiatric visit, and many clinics upon joining DIAMOND had to work hard to find a psychiatrist to consult with as part of the model. The care managers were trained on the ICSI evidence-based guidelines for depression treatment in primary care, each clinic was asked to develop a plan on how to manage suicidal patients should that issue arise, and the involvement of supervision by a psychiatrist each week allowed input by a specialist for a patient with depression in primary care within days as opposed to weeks or months. After three years, out of over 4500 activated patients (who by definition all had de-

**Table 1** Primary outcomes at six months

| | RCT reported results on similar models of care management 10–12 | | DIAMOND (as of March 2010) Intent to treat | |
|---|---|---|---|---|
| | Intervention | Usual care | Intervention | Usual care* |
| 6-month response rate (average) | 24–60% | 16–50% | 36% (1067/3049) range 8–60% | Unknown |
| 6-month remission rate (average) | 14–37% | 9–27% | 27% (790/3049) range 7–51% | 0–10% (average 5%) |

* Data from state source (Minnesota Health Scores)

**Table 2** Process measures for DIAMOND

| Process measures | Data from March 2008 to March 2010 |
|---|---|
| Number of individual primary care clinics | 80 |
| Primary care providers | 489.93 full-time equivalents |
| Patients activated | 4862 |
| All patients diagnosed with major depression or dysthymia | 80 221 |
| with any PHQ-9 data | 67% (54 137/80 221) |
| initial PHQ-9 score ≥10 | 45% (24 294/54 137) |
| Percentage of eligible patients reached by care managers to invite to participate | 31% (7583/24 294) (of these on average 64% agree (4862/7583)) |
| Percentage of all eligible patients activated into care management | 20% (4862/24 294)(among clinics range 1–100%) |
| Percentage of patients choosing not to participate (opt out) | 36% (2721/7583) |
| Primary reasons for opt out | Unable to afford care management, lost to follow up |
| Patients eligible for 6-month outcomes who could be reached for a PHQ-9 at 6 months | 1759/3049 = 58% |

pression and moderate symptoms with no exclusion criteria except bipolar disorder) there were four recorded suicides. These numbers may underestimate the actual rate as suicide is not routinely reported in primary care patients. There was no corresponding data from primary care in Minnesota where DIAMOND is not used. The literature suggests the risk for suicide among depressed patients ranges from 2 to 9%.[9]

## Costs

Payment for this model of care was not based on face-to-face visits with providers but rather a bundled payment that included the care managers salary: all the work performed by the care manager such as maintenance of the registry, frequent contact with the patients (phone, face-to-face and email), ongoing communication with the patient's primary care provider and a routine meeting with the consulting psychiatrist to review and advise on the caseload of patients with depression who were active in the programme. Any face-to-face visits between the patient and the primary care provider or a mental health provider would fall under the current 'fee for service' structure of payment. The project was designed to cover the costs of maintaining the programme with the goal that practices should be able to sustain this model over time. The final fee was tied to a new reimbursement code, which was defined as the DIAMOND care management fee, and involved a monthly payment that would continue for up to 12 consecutive months or until the patient reached remission (when he/she would 'graduate' and be given relapse prevention training). In this way, the payment was tied to outcomes.

Several major insurance companies (Blue Cross Blue Shield of MN, UCare, HealthPartners, Medica, Metropolitan Health Plan, Preferred One, Itasca Medical Care, Security Health Plan and MMSI) have paid the new fee, but to date it has not been covered by any government funders. Participating DIAMOND practices with larger percentages of publicly insured or uninsured patients have been unable to cover costs. Data on utilisation reduction (direct cost offset) and improved productivity (indirect cost offsets) are not yet available. Payment-for-performance is also available. Data on remission rates at six months based on the PHQ-9 is now required of primary care practices across the state. Practices in the top 20% will receive 100 dollars per eligible patient (those employed by member employers of the Buyer's Healthcare Action Group in the Bridges to Excellence Program, www.bhcag.com).

# Discussion

Creating value in depression management requires that there be 'value' to all stakeholders including patients, primary care providers, psychiatrists, employers, health plans and patients. To accomplish this, a depression care model with a clear definition of quality and awareness of the costs involved was implemented in Minnesota. Improvements include practice changes (earlier specialty input, more consistent tracking of improvements) and routine use of outcome measures, accompanied by a new source of income for involved practices. Six-month remission rates, while challenged by missing data, were comparable to those found in research studies.[12] The addition of a new fee covered by local insurance companies takes into account the importance of incentives for sustainability, a common challenge to practice from research studies that demonstrate a benefit, but where the changes disappear with the funding.[2] Data on cost offset (return to work and utilisation changes) is yet to be gathered, but if this programme behaves like models in the published literature,[9] participating insurance companies and practices should see reductions in utilisation for the same or less overall cost.

The main finding in this case study is arguably the demonstration in a quality improvement project of six-month response and remission outcomes that are comparable with those found in the much more highly controlled environment of research (Table 1). Significant challenges were also demonstrated in consistent use of the primary measurement tool (the PHQ-9), recruitment of patients into care management and in keeping patients engaged, even with the added resources of care management.

Limitations of this analysis are largely related to the fact that the DIAMOND project was not constructed as a research study, but rather as a quality improvement initiative. As such, clinical diagnoses are not standardised (rather they are made by primary care physicians) which may mean that patients with depressive-spectrum disorders are included in the analysis. Participation by patients costs them or their insurance companies a fee, which reduces recruitment and is likely to preferentially select those who have insurance coverage. We do not present data on patient demographics (as it was not gathered), but in 2007 the state was noted to have over 75% of its population of western European ancestry and the results may therefore not generalise to minority populations. Recruitment rates from among those potentially eligible for care management treatment were fairly low at 21%, which may bias results, and missing data is a major challenge in clarifying overall response and remission rates.

# Conclusions

To increase value, a process for quality improvement of depression is required that includes several key ingredients. First, a model of care that is clearly superior to practice as usual must have been demonstrated to work in real world settings. Second, all parties involved in the healthcare transaction need to come together to develop shared definitions regarding outcomes in the treatment of an illness or disease. Third, attention to how practices might change must be supported by modifications in the incentives (reimbursements) involved to sustain positive improvements.

In this example, clinical outcomes (PHQ-9 response and remission) that were meaningful to all stakeholders were introduced along with improvements in safety for depressed patients (consistent involvement of a psychiatrist with the practice improves access to evidence-based care) and service (care for the patient where they present in primary care with phone-based follow-up that does not require a visit). The cost of introducing and sustaining this model in practice was also part of the negotiation. In this case, the cost was tied to outcomes (remission of depression) rather than to procedures or visits. New processes are needed in health care to create value in depression management. The DIAMOND programme offers a new direction for achieving this goal.

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## ETHICS

Ethical approval was not required for this improvement project.

## PEER REVIEW

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## CONFLICTS OF INTEREST

None.

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