Improving Quality And Diffusing Best Practices: The Case Of Schizophrenia

Evidence-based practices tend to be used less than non-evidence-based practices in mental health care.

by Marcela Horvitz-Lennon, Julie M. Donohue, Marisa E. Domino, and Sharon-Lise T. Normand

ABSTRACT: The slow spread of treatments supported by empirical evidence and the rapid diffusion of treatments lacking such support play major roles in the lower quality of mental health care received by people with severe mental illnesses compared with the care of less severely ill people. Further, the rapid spread of treatments that are of low cost-effectiveness limits the system’s ability to provide the full gamut of high-value treatments available to treat this vulnerable population. Using the case of schizophrenia, we review the context in which these paradoxical patterns of diffusion have occurred, and we propose policy solutions. [Health Affairs 28, no. 3 (2009): 701–712; 10.1377/hlthaff.28.3.701]

Understanding and correcting anomalous patterns in the diffusion of health care innovations is key to improving the performance of the U.S. health care system. Low rates of adoption of treatments that are supported by empirical research findings—that is, evidence-based practices—and high rates of adoption of non-evidence-based practices plague the care of people with mental illnesses. We focus on people with severe and persistent mental illnesses (schizophrenia, bipolar disorder, and severe forms of major depression and anxiety disorders) because of their distinct needs and treatment circumstances in the United States. Most people with severe mental illnesses are cared for in the specialty mental health sector, and their mental health and general health care are largely financed by public funds. In addition, evidence-based psychosocial practices that help patients rehabilitate and integrate into the community are uniquely critical for such patients because of the severe functional impairment associated

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In this paper we describe the paradoxical patterns of diffusion and review factors likely to be associated with these patterns. Because current use offers a window into past patterns of diffusion, we assume that diffusion and use patterns are manifestations of the same underlying phenomenon. We conclude with a discussion of policy strategies aimed at correcting the diffusion paradox and improving the care of this vulnerable population.

Prevalence And Costs Of Schizophrenia

Although schizophrenia affects only 0.7 percent of the U.S. population (two million adults), it accounts for 5 percent of all burden of disease in the United States and other developed countries, as a result of its early age of onset (third decade or younger), chronic course, severe disability, and premature mortality.

Schizophrenia also entails a sizable economic burden. In 2002, the overall annual U.S. cost of the illness was estimated to be $63 billion: $23 billion for direct health care; $8 billion for direct non-health care costs such as law enforcement and homeless shelters; and $32 billion in indirect costs associated with lost productivity, premature mortality, and negative effects on family members. This represents nearly half of the U.S. cost of diabetes in 2002, even though diabetes is at least six times more prevalent than schizophrenia.

The Diffusion Paradox In The Treatment Of Schizophrenia

- Slow diffusion of evidence-based practices. In the past two decades, basic and clinical research programs in schizophrenia have greatly expanded the therapeutic arsenal and improved patients’ odds of leading fuller lives. However, as in other areas of health care, some innovations have diffused very slowly from experimental to routine care settings. The resulting underuse of evidence-based practices has kept scores of patients from receiving potentially beneficial interventions. The schizophrenia Patient Outcomes Research Team (PORT) study found that in the late 1990s, adherence to recommended outpatient practices ranged between 10 percent and 46 percent for ten of eleven practices studied. Later studies have confirmed these results.

  Supported employment, family psychoeducation, and other evidence-based psychosocial practices used to treat schizophrenia are more likely than pharmacological evidence-based practices to diffuse slowly, and they are used less frequently. Moreover, limited evidence suggests that psychosocial practices are being used less often than before.

  A detailed discussion of underused evidence-based practices is beyond this paper’s scope. However, two such practices are noteworthy: clozapine treatment, because of its unique role in the treatment of schizophrenia; and supported employment, because of its importance in facilitating integration into the community.

  Clozapine. Although clozapine is the only drug approved by the Food and Drug
Administration (FDA) for the management of treatment-resistant symptoms and recurrent suicidal behavior, its use rates are far lower than the estimated need. Strikingly, its diffusion and use were not boosted by the FDA approval in December 2002 of a second indication (suicidal behavior) (Exhibit 1). Underuse of clozapine is likely to be related to its potential for serious hematological adverse effects and mandatory blood tests instituted to monitor hematological indices. However, the substantial reduction of the drug’s hematological risk as a result of the monitoring program and higher clozapine use rates observed in countries with similar blood test requirements as in the United States suggest that factors unrelated to the drug also contribute to its underuse.

Supported employment. Supported employment is an evidence-based approach to securing and maintaining competitive employment for people with schizophrenia and other severe mental illnesses. Most vocational services offered in routine care are not empirically supported. It is troubling, then, that rates of use of any vocational service in this population range from 0 to 23 percent and that only 5 percent of this population were found in one study to receive supported employment. As with clozapine, its underuse is likely to be multifactorial. Tina Marshall and colleagues found that successful implementation of supported employment was associated with leadership and with the experience, training, and attitudes of the workforce regarding the employability of people with severe mental illnesses.

Rapid diffusion of non-evidence-based practices. The rapid diffusion of practices lacking empirical support is a matter of great public health and policy concern. At worst, such practices’ potential for harm exceeds their likely benefit; at best, their use represents an inefficient use of resources and thus constitutes overuse. Antipsychotic polypharmacy—the practice of using two or more antipsychotics simultaneously—is an example of an overused therapy in the treatment of schizophrenia.

EXHIBIT 1
Changes In Daily Dose Units (DDUs) Of Clozapine Per Thousand Medicaid Enrollees, By Clozapine Form, 1996–2005 (Selected Quarters Shown)

<table>
<thead>
<tr>
<th>DDU per thousand enrollees</th>
<th>200</th>
<th>150</th>
<th>100</th>
<th>50</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>All clozapine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand-name clozapine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generic clozapine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996 Q1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998 Q1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000 Q1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>2002 Q1</td>
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<td>2003 Q1</td>
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<td>2004 Q1</td>
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<tr>
<td>2005 Q4</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

SOURCES: Authors’ calculations based on fee-for-service Medicaid claims data, 1996–2005.
schizophrenia. Although this practice lacks empirical support, methodologically di-
verse U.S. studies have found use rates as high as 50 percent, and use appears to be on the rise.  
Although its contributing factors are not well understood, evidence suggests that physicians use antipsychotic polypharmacy in lieu of clozapine for patients with treatment-resistant symptoms.

**Increased use of lower-value treatments.** To address rising health care costs, policymakers have focused their attention on diffusion and use of treatments of proven effectiveness and also on cost-effectiveness. Peter Orszag, former director of the Congressional Budget Office, endorsed an expanded definition of overuse that includes situations in which “the added costs of a more expensive service did not exceed the added benefits it was expected to provide.” The rapid diffusion of atypical antipsychotic drugs and their rise to standard-of-care status is an example of overuse defined in this manner (Exhibit 2). With the exception of clozapine, initial claims of superior efficacy relative to conventional antipsychotic drugs have not been borne out. Further, brand-name atypical antipsychotics are far more costly and, based on recent research, less cost-effective than conventional antipsychotics. Although valid concerns about the methodological quality of the cost-effectiveness data have been raised by Richard Frank and others, available evidence suggests that the market dominance of non-clozapine atypical agents fits the expanded definition of overuse given above.

**Implementing EBPs Project.** The National Implementing Evidence-Based Practices for Severe Mental Illness Project (Implementing EBPs Project) has sought to promote the implementation of underused evidence-based practices for schizo-

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**EXHIBIT 2**

Percentage Of Respondents With Self-Reported Schizophrenia Using Each Atypical Antipsychotic Drug During The Study Year

<table>
<thead>
<tr>
<th>Drug</th>
<th>Percent with use in 1996/97</th>
<th>Percent with use in 2004/05</th>
<th>Growth in use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clozapine</td>
<td>3.9 (2.4)</td>
<td>4.8 (2.9)</td>
<td>21.7%</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>12.1 (3.6)</td>
<td>35.0 (6.2)</td>
<td>189.9</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>_a</td>
<td>14.4 (4.6)</td>
<td>_a</td>
</tr>
<tr>
<td>Risperidone</td>
<td>12.9 (4.9)</td>
<td>19.4 (4.6)</td>
<td>51.2</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>_a</td>
<td>10.1 (3.7)</td>
<td>_a</td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>_a</td>
<td>15.6 (4.4)</td>
<td>_a</td>
</tr>
<tr>
<td>Any</td>
<td>26.7 (6.6)</td>
<td>75.2 (5.0)</td>
<td>181.9</td>
</tr>
</tbody>
</table>

**SOURCE:** Authors’ calculations based on data from Medical Expenditure Panel Survey (pooled weights), selected years 1996–2005.

**NOTES:** N = 237. Percentages reflect percentage of people reporting one or more filled prescriptions during the year. Respondents may report use of more than one medication, so the sum of the percentages is greater than 100. Figures in parentheses are linearized standard errors. Growth rates calculated from the rounded values shown in “Percent with use” columns will vary from those shown in the “Growth in use” column because of rounding. 

_a Not available in 1996/97.
phrenia and other severe mental illnesses. Investigators developed implementation toolkits and piloted the implementation of five psychosocial evidence-based practices in eight states. An indirect measure of the project's success is evidence that states have steadily expanded their offering of the psychosocial practices promoted by this initiative.

Factors Associated With The Diffusion Of Treatments

The rate at which treatment innovations spread through the health care system results from the interplay of several factors. The literature on diffusion distinguishes factors related to the innovation (such as effectiveness and safety); patients (for example, treatment preferences); clinicians (attitudes and competencies); and the system of care. System-level factors include all aspects of the environment in which care occurs (for example, financial policies, regulations, and structural and cultural characteristics of organizations that adopt various practices). In the United States, the system of care for people with schizophrenia and other severe mental illnesses is the publicly funded specialty mental health sector. Public health programs play a crucial role in the financing, and to a lesser extent, the delivery of health care. Additional public-sector dollars fund key social services for this population. These public programs operate in an environment characterized by short-term constraints and chronic resource limitations, and the delivery system is a poorly coordinated web of public and private providers with few incentives to plan for the long term.

We next discuss factors amenable to public policies that are likely to have an important role in the diffusion paradox.

Financing of care. Although we focus on Medicaid and Medicare, we note that the Veterans Health Administration (VHA) and state and local governments also play a role in financing the care of this population, particularly veterans and uninsured people.

Medicaid. Medicaid is the single largest payer for people with severe mental illnesses, including those with schizophrenia. An important trend in Medicaid has been the expansion of managed care programs. For a large proportion of people with severe mental illnesses enrolled in these programs, nonpharmacy benefits for mental health and substance abuse care (together known as behavioral health care) are managed by managed behavioral health care organizations (MBHOs) in carve-out arrangements.

The net effects of managed care on the diffusion process are poorly understood. Managed care is associated with greater use of ambulatory services, which in turn is associated with greater use of medications to treat mental illnesses. However, managed care is also associated with greater use of management tools aimed at curbing the use of expensive drugs. Further, the separation of behavioral health and general health/pharmacy benefits that characterizes carve-out arrangements creates incentives for a psychotropic drug–based approach to treatment and a re-
duction in the use of psychosocial interventions. Overall, the evidence is mixed on the effects of Medicaid managed care on quality of care for people with schizophrenia. The only published study that has investigated the diffusion effects of carve-out arrangements found that they are associated with an increase in the use of newer antidepressants but not of atypical antipsychotics.

Medicare. Many Medicare-covered disabled people, including those with schizophrenia, are also eligible for Medicaid coverage. With the implementation of the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) in 2006, pharmacy benefits of so-called dual eligibles were transferred to Medicare, which greatly expanded Medicare's role among people with schizophrenia and other severe mental illnesses. Although little is known about MMA's effects on the quality of care for this population, preliminary evidence suggests that access to psychotropic drugs may be problematic.

**Regulatory framework.** Federal and state administrative practices. These practices aim to ensure the quality of providers (through their accreditation) and of clinicians (through their licensing and credentialing). Because accreditation allows payers to penalize providers that fail to meet contractual performance standards, it could play a role in correcting the diffusion paradox in the care of people with schizophrenia. Although performance measures of relevance to this population are available, the most widely used quality-monitoring tool (the Healthcare Effectiveness Data and Information Set, or HEDIS) does not contain any schizophrenia measures. Similarly, federal and state oversight of the quality of the mental health workforce remains an underused regulatory tool.

Payer and health plan utilization management (UM) strategies. Although physician profiling and other UM strategies could be used to promote high-quality care, they have been primarily used to contain costs exclusively regarding psychotropic drug prescribing practices.

**Private-sector initiatives.** Private-sector initiatives can influence the diffusion of evidence-based practices. For example, advocacy by patients and families accelerated the adoption of Assertive Community Treatment, and advocates' positive reviews of atypical antipsychotics may have contributed to the early surge in their use. Sponsorship of academic activities and other pharmaceutical marketing strategies increases demand for antidepressants and other prescription drugs. We are not aware of similar empirical research for antipsychotic agents, but it is likely that aggressive marketing of drugs that are still enjoying patent protection played a major role in the rapid diffusion of non-clozapine atypical agents.

**Other factors.** The heterogeneous workforce involved in the care of people with schizophrenia is generally lacking in the skills and competencies required to
adopt evidence-based practices and deliver high-quality care to this population. Further, the challenging implementation and uncertain sustainability of more-complex evidence-based practices contribute to their underuse; despite the valuable implementation tools and evidence generated by the Implementing EBPs Project, more research on the transport of evidence-based practices to the real world is needed. In addition, the variable quality and conflicting nature of available evidence on the effectiveness and cost-effectiveness of treatments complicate decisions on which treatments to fund and implement. Lastly, health information technology (IT) can be used to monitor processes of care and promote evidence-based and high-value care, but the insufficient computerization of the specialty mental health sector may be contributing to the diffusion paradox.

Policy Strategies

Although the overriding objective of the strategies suggested below is to increase the use of evidence-based practices treating schizophrenia and other severe mental illnesses, some of them aim to decrease the use of non-evidence-based practices or increase the value (cost-effectiveness) of care for this population.

Federal, state, and local governments are uniquely positioned to shape the financing and organization as well as the content and quality of health and social services available to people with schizophrenia. Exercising their leadership, these public entities could implement a quality improvement agenda that, among other things, includes policies to influence the diffusion of treatments. High-level leadership will be crucial to advancing this agenda because powerful institutions need to be mobilized, resources need to be reallocated, and public-private partnerships need to be forged. The main targets for this high-level effort include financial incentives, regulatory tools, quality of the workforce, and quality of the evidence.

Financial incentives. Medicaid. Given Medicaid's central role in the financing of care for this population, the agency should play a more active role in guiding treatment diffusion. In 2006 more than half of all state Medicaid programs had adopted pay-for-performance (P4P) approaches to promote high-value care, and more states are expected to move in that direction. However, their target populations and performance measures have largely excluded chronically ill adults and people with serious mental illnesses. Following Medicare's lead, the federal government could pilot and evaluate the access, quality-of-care, and cost effects associated with the use of incentives to promote high-value care for people with schizophrenia and other serious mental illnesses. Although tying financial incentives to the preferred use of cost-effective treatments may encounter resistance, there is growing support for initiatives that aim to maximize value in publicly funded health care.

State and regional Medicaid programs have two main policy levers to guide diffusion in their fee-for-service programs. First, by modifying the pool of reimbursable services, they can promote the adoption of underused evidence-based practices and discourage the use of non-evidence-based or lower-value treatments.
Second, Medicaid programs can increase reimbursement rates for evidence-based practices and clarify existing coverage opportunities. Medicaid programs can also guide diffusion in their managed care programs. First, they can increase capitation rates to adequately reimburse high-value practices with high start-up or operating costs. Second, they can incorporate expectations for evidence-based care into their procurement and contracting processes, with performance provisions and other tools.

In addition, policymakers may consider making MBHOs financially responsible for psychotropic drug use. In doing so, they would remove a financial incentive to delivering care that is largely based on psychotropic drugs and is lacking in psychosocial treatments. Regardless of the financing mechanism, contracts should promote long-term health planning and financial and administrative coordination between providers of health and social services.

Medicare. In addition to the policy strategies outlined above for Medicaid, it is critical to evaluate MMA’s quality-of-care effects for people with schizophrenia and other severe mental illnesses.

- **Regulatory tools.** *Accreditation and licensing/credentialing.* The accreditation process for providers serving people with severe mental illnesses needs to incorporate existing performance measures for these illnesses. Further, to address the educational and training deficits of the mental health workforce, policies should be enacted to standardize licensing and credentialing requirements of clinicians and to ensure their uniform application across disciplines, states, and health plans.

- **UM strategies.** Reorienting the use of UM strategies toward the attainment of quality goals would provide payers and health plans with a powerful tool to correct the diffusion paradox in the care of people with schizophrenia. For example, physician profiling and step therapy—the requirement that lower-cost drugs fail to ameliorate patients’ symptoms before they can receive coverage for higher-cost drugs—could be used to increase the adoption of evidence-based practices and to curb the use of non-evidence-based as well as lower-value practices.58

- **Quality of the workforce.** The inadequacies of the mental health workforce call for a policy response that goes beyond the changes in licensing and credentialing requirements mentioned above. A public-private partnership that includes educational institutions and those that accredit them should be established, to modernize the curricula and training activities of mental health clinicians.59 In the short and medium term, the federal government should take a more active role in training activities. For example, as recommended by Howard Goldman and Susan Azrin, the federal government could develop a national multidisciplinary training program charged with improving the quality of the workforce.60 Further, although several
state mental health agencies are developing training programs as part of their activities to implement evidence-based practices, these state efforts need to be expanded and sustained. Lastly, to address the growing influence of pharmaceutical marketing on providers’ decision making, the federal government might consider public financing of academic detailing as well as mandating public disclosure of pharmaceutical industry payments to physicians.

- Quality of the evidence. Correcting the diffusion paradox will require greater governmental support for translational research aimed at bridging the gap between science and services. For example, the Substance Abuse and Mental Health Services Administration (SAMHSA) could fund demonstrations focused on evidence-based practices for schizophrenia to expand the knowledge base generated by the Implementing EBPs Project.

Although more research is needed to achieve better outcomes for people with schizophrenia, it is equally important to make better use of existing knowledge. Similar to the National Institute for Health and Clinical Excellence (NICE) in the United Kingdom, the Agency for Healthcare Research and Quality (AHRQ) or a newly created entity could be charged with conducting appraisals of the comparative effectiveness and cost-effectiveness of treatments for schizophrenia. In addition, AHRQ should sponsor research to develop and refine performance measures for severe mental illnesses. Appraisals of the evidence and improved performance measures would aid in implementing payment methods aimed at improving the quality and value of health care. To address concerns of bias in industry-sponsored research, the source of the evidence used in the appraisals of the evidence should be transparent.

- Other policy strategies. As the federal government is about to launch an important initiative to promote the adoption of health IT, greater use of its considerable financial and administrative leverage is needed to expedite its adoption by providers serving people with severe mental illnesses. Strategies include building financial incentives into contracts or tying provider accreditation to a minimal level of computerization.

Lastly, engaging advocacy groups in initiatives aimed at correcting the diffusion paradox is critical to ensuring their success. An important component of this effort involves increasing advocates’ understanding of the variable quality of the empirical evidence and the need to include the cost and value of treatments in resource allocation decisions for publicly funded health care.

The quality of care for people with schizophrenia and other severe mental illnesses is far from optimal in the United States. This troubling reality is in large measure a consequence of the slow diffusion of evidence-based practices and the rapid diffusion of practices that are not based on evidence or are of lower value. Our proposed policy solutions have the potential to correct this diffusion paradox.
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NOTES
2. Institute of Medicine, Improving the Quality of Health Care for Mental and Substance Use Conditions (Washington: National Academies Press, 2006); and President’s New Freedom Commission on Mental Health, Achieving the Promise: Transforming Mental Health Care in America, Pub. no. SMA-03-3832 (Rockville, Md.: DHHS, 2003).
3. IOM, Improving the Quality.
14. Lehman et al., “Patterns of Usual Care”; and Drake et al., “What Explains the Diffusion?”
15. Frank et al., “Quality-Constant Prices.”
27. Orszag, “The Overuse, Underuse, and Misuse.”
36. IOM, Improving the Quality; and President's New Freedom Commission, Achieving the Promise.
38. IOM, Improving the Quality.
41. See, for example, Dickey et al., “Guideline Recommendations.”


52. Alliance for Health Reform, "Comparative Effectiveness."

53. IOM, Improving the Quality, chap. 6, 259–285.

54. Goldman and Azrin, "Public Policy."


60. Goldman and Azrin, "Public Policy."


63. Goldman and Azrin, "Public Policy."

64. Alliance for Health Reform, "Comparative Effectiveness."

65. IOM, Improving the Quality, 196.
