Accuracy of Diagnoses of Schizophrenia in Medicaid Claims

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Medical insurance claims are increasingly important as a source of data in monitoring health care utilization and patient outcomes and in identifying patient cohorts for research. In a study that attempted to verify that those with Medicaid claims for treatment of schizophrenia did indeed have the disorder, two psychiatrists evaluated clinical information obtained from primary mental health care providers in relation to DSM-III-R criteria. The psychiatrists classified 86.8 percent of 319 patients with claims for treatment of schizophrenia and 27.5 percent of 156 patients with claims for treatment of other psychiatric diagnoses as definitely or probably having schizophrenia. The authors conclude that most diagnoses of schizophrenia listed on Medicaid claims are accurate, but that a substantial number of individuals with schizophrenia may not be identified by claims data.

Data from medical insurance claims are of increasing interest as a source of information in monitoring the utilization and quality of health care. However, the value of using claims data for these purposes has been questioned by researchers who are skeptical about the accuracy of the diagnoses recorded on claim forms. The accuracy of psychiatric diagnoses in claims data may be particularly problematic because the clinical diagnoses themselves are not always clear cut. Clinicians who wish to avoid recording stigmatizing diagnoses on claim forms may introduce further inaccuracies into these data.

Yet investigators who wish to monitor outcomes by direct evaluation of patients may need to rely on claims data to identify a cohort for study. In such studies, it is important to eliminate two sources of error. The first step is to establish the reliability of the data by ascertaining that the diagnosis on the patient’s claim forms reflects the diagnosis in the patient’s chart. The second step is to establish the validity of the data by assuring that the patient did in fact receive the right diagnosis.

Schwartz and colleagues (1) examined the reliability of the coding of psychiatric diagnoses in a sample of claims submitted to Medicaid in New York. Reliability varied by diagnosis, with the diagnosis on the claim form agreeing with the diagnosis in the chart in 50 to 94 percent of the cases. Reliability was highest for diagnoses of psychoses. In 90 to 94 percent of cases with those diagnoses, the claim forms agreed with the charts.

The issue of validity is more difficult to address. Laboratory tests are not available to confirm the diagnoses of most psychiatric illnesses, including schizophrenia. A diagnosis of schizophrenia rests on observation and direct clinical interviewing. Although the conceptualization of schizophrenia as “a syndrome or spectrum of disorders” has gained increasing acceptance, at least 12 major sets of diagnostic criteria for the disorder are in use in Western psychiatry (2).

In 1982 Lipkowitz and Idupuganti (3) surveyed 341 U.S. psychiatrists about the criteria they used in making a diagnosis of schizophrenia. They found that even after the 1980 issuance of DSM-III, many psychiatrists “continued to approach the diagnosis in an individualistic unsystematic way.” We do not know whether this finding reflects current practice.

The majority of recent and ongoing formal studies of schizophrenia have used structured interviews or instruments such as the Schedule for Affective Disorders and Schizophrenia (4) to establish the diagnosis. When these gold-standard research methods are not feasible, use of DSM-III-R criteria for schizophrenia should be a workable alternative, if researchers can show that the clinician making the diagnosis has addressed these criteria.

We recently evaluated a demon-
tration project in Hennepin County, Minnesota, that used capitated funds from Medicaid to finance treatment of chronic mentally ill patients. The research focused on the experience of schizophrenic patients. We identified the patients in the sample using the diagnoses recorded on Medicaid claim forms. In this paper, we report our experience in using DSM-III-R criteria to verify diagnoses of schizophrenia recorded on those forms. We also sought to determine whether diagnoses of schizophrenia recorded on claim forms identified most patients with that disorder.

Methods

Identifying the Sample. As part of a larger study, we developed an algorithm to identify chronic mentally ill clients using data contained in Medicaid claims. The algorithm, which has been previously described (5), is based on the ICD-9 diagnosis that appears on the claim form and the intervals between the dates of service recorded on the claims. To qualify for inclusion in our sample of schizophrenic patients, a patient would need one claim for inpatient treatment or two claims for outpatient treatment of schizophrenia within the previous two years.

The algorithm was applied to claims data from the two years before the Medicaid demonstration project for all patients who were eligible for treatment through that project on the basis of being classified as disabled by the state of Minnesota. Mentally ill people eligible for Medicaid on the basis of other criteria, such as receiving Aid to Families With Dependent Children, were not included in the demonstration project and were not part of the study.

Study Sample. The sample for the current study consisted of 385 patients who were identified by the algorithm as having a diagnosis of schizophrenia and 354 patients who were identified by the algorithm as having chronic mental illness, although diagnoses other than schizophrenia were listed on their Medicaid claim forms.

We sought to verify the diagnosis of schizophrenia for all patients with claims for treatment of that diagnosis. Conversely, we tried to rule out the diagnosis of schizophrenia for a random 50 percent of the 354 patients in the group with claims for treatment of diagnoses other than schizophrenia.

Validating the Diagnosis. All patients gave informed consent permitting us to contact their mental health care provider and to review their medical records as part of the evaluation of the capitation project. We developed a series of 24 multiple-choice questions to collect clinical information about each patient's psychiatric illness. We then contacted the primary mental health care providers identified by the patients and asked the providers to answer our questions by mail or phone.

Questions focused on the clinical elements in the DSM-III-R criteria for schizophrenia as well as other psychiatric symptoms. In particular, we asked whether the psychotic symptoms detailed in part A of the DSM-III-R criteria for schizophrenia were present, whether the patient's general level of functioning had been reduced during the disturbance (part B of the criteria), and whether signs of the disturbance had been present for at least six months (part D of the criteria).

In addition, we asked whether the provider had prescribed any of five types of psychotropic medication, including neuroleptics, for the patient. We asked clinicians to provide the patient's psychiatric diagnosis and tell how often and when they last saw the patient. We also inquired whether the patient had homicidal or suicidal thoughts or had features of anxiety disorders or mood disorders. The questions about the diagnosis of schizophrenia were embedded in a larger matrix of questions to prevent the respondent from guessing the intent of our interview.

Classifying Diagnoses. All answers to the questionnaire were processed using a computer program to identify patients who fulfilled DSM-III-R criteria for schizophrenia. These patients were classified as definitely having schizophrenia. Two psychiatrists reviewed data for patients who had a diagnosis of schizophrenia according to their claim form but who did not fulfill DSM-III-R criteria for the diagnosis according to the responses on the questionnaire. The psychiatrists also reviewed all cases that had a diagnosis other than schizophrenia on the claim form. The psychiatrists discussed each case and, based on available information, classified patients as definitely, probably, or possibly having schizophrenia or as definitely not having schizophrenia.

Results

A total of 385 patients were classified as having a diagnosis of schizophrenia by the claims algorithm. They were cared for by 96 providers. We were able to obtain clinical data on 319 patients (83 percent). Clinical data were not available for eight patients who reported not having a mental health care provider.

The remaining 58 patients for whom we did not obtain clinical data were cared for by six providers. Three of those providers could not be contacted or claimed not to have records for the patients in question, and three refused to participate, including a single provider who cared for 26 patients. We sought to interview the mental health care providers of 177 patients who were classified by the algorithm as having chronic mental illness but not as having schizophrenia. We succeeded in contacting the providers of 156 patients (88 percent).

Table 1

<table>
<thead>
<tr>
<th>Likelyhood of schizophrenia</th>
<th>Patients' claims</th>
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<tbody>
<tr>
<td></td>
<td>Schizophrenia</td>
</tr>
<tr>
<td>Definite</td>
<td>250</td>
</tr>
<tr>
<td>Probable</td>
<td>27</td>
</tr>
<tr>
<td>Possible</td>
<td>22</td>
</tr>
<tr>
<td>Definitely not</td>
<td>20</td>
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1 Based on clinical information from mental health care providers.
The two psychiatrists agreed on the probability of schizophrenia for all but seven patients. All seven of those disagreements were in the distinction between a probable and possible diagnosis of schizophrenia, and they were resolved with further discussion. There were no disagreements between the psychiatrists in their judgments about which patients definitely had schizophrenia and which definitely did not have schizophrenia.

Table 1 shows the psychiatrists’ judgments about whether the patients identified by the algorithm as having schizophrenia and as having other diagnoses actually had those diagnoses. Only 6 percent of the patients identified as having schizophrenia by the algorithm were classified by the psychiatrists as definitely not having schizophrenia. In contrast, 86.8 percent of the patients who were identified by the algorithm as having schizophrenia were classified by the psychiatrists as definitely or probably having schizophrenia.

The table also shows that the psychiatrists judged a substantial number of patients (N=43) who were not considered to have schizophrenia by our algorithm as definitely or probably having schizophrenia on the basis of clinical data. Of these patients, three did not satisfy our initial algorithm criteria of two claims for outpatient treatment of schizophrenia, but had only one. The remainder of the patients in this category had associated claims for a wide range of other psychiatric diagnoses besides schizophrenia. We did not attempt to determine whether diagnostic criteria for the other diagnoses were satisfied.

Discussion and conclusions

Using claims data to identify a cohort of patients for study has many advantages. Data about large numbers of subjects can be reviewed quickly, saving the expense and time of performing individual psychiatric assessments before patients enter a study. However, using claims data can be fraught with problems, including problems in establishing the reliability and validity of the data.

In this study we successfully used claims data to identify a cohort of patients with schizophrenia. However, our analysis uncovered a high rate of false negatives, that is, a substantial number of individuals without a diagnosis of schizophrenia on their claim form who probably had schizophrenia, according to the psychiatrists who reviewed their clinical data. Such discrepancies do not pose a problem if claims data are used to identify a sample of patients for study, but they can be problematic if the researcher hopes to use these data to define the universe of patients with a particular diagnosis. The problem is compounded when patients with false negatives differ substantially from the true positives in the type of provider they see or in socioeconomic status.

The 28 percent rate of false negatives we found may reflect the tendency of some providers to avoid stigmatizing patients with the label of schizophrenia or may reflect clinicians’ failure to recognize the condition. Other possible explanations include providers’ lack of consistency in diagnosing schizophrenia in patients who have a favorable clinical presentation due to successful neuroleptic therapy. In any case, our results identify errors of omission (false negatives) as a major problem confronting the researcher who intends to use claims data to identify a sample.

The methodology we described has several limitations. First is the lack of a standardized, face-to-face psychiatric assessment to make or refute the diagnosis of schizophrenia. Second, some of the providers who responded to the questionnaire were not psychiatrists or were not the individuals who had made the original diagnosis. In some cases, our questions were answered by a nurse or other practitioner who knew the patient and who obtained information from the psychiatrist’s records. Finally, it is possible that the sensitivity and specificity of the DSM-III-R criteria for schizophrenia are low enough to cause substantial misclassification of clients.

Regardless of these limitations, we believe claims data can be used to identify a patient cohort. In our experience, the large majority of patients for whom a claim for treatment of schizophrenia was submitted did indeed have schizophrenia. If researchers using claims data need to validate diagnoses, we believe it is feasible to contact mental health providers to obtain additional clinical information.

Insurers who wish to use claims data to judge the nature or outcome of psychiatric care may prospectively need to establish criteria for assigning a diagnosis in the claims process and to monitor compliance with those criteria. Although it may not be feasible to incorporate questions such as those we asked providers into routine claim forms, such questions could easily be asked as part of a process for monitoring the quality of the claims process.

References