

How Many Assertive Community Treatment Teams Do We Need?

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Objective: Assertive community treatment (ACT) reduces hospitalizations for persons with severe mental illness. However, not everyone who needs ACT receives it. Without empirical guidelines for ACT planning, communities are likely to underestimate or overestimate the number of teams they need; thus the capacity of the programs will not meet current needs. In this study, administrative data were used to develop empirical estimates for the number of required ACT teams. These estimates were then used to examine current conceptual guidelines for developing the number of ACT teams that communities need. **Methods:** Administrative data from a large, urban county were used to enumerate all persons with a severe mental illness who had three or more hospitalizations within one year (ACT eligible). **Results:** Fifty-one percent of persons with a severe mental illness were found to be eligible for ACT (743 of 1,453 persons). This figure represents 2.2 percent of the county's mental health users and .06 percent of its adult

population. **Conclusions:** Communities should develop enough ACT teams to serve approximately 50 percent of their populations of persons with severe mental illness or roughly .06 percent of their adult populations. (*Psychiatric Services* 57:1803–1806, 2006)

Assertive community treatment (ACT) reduces hospitalizations among persons with severe mental illness (1–3). However, ACT is expensive and should be targeted toward persons with the most profound illnesses (4–6). Also, some authors have suggested that ACT is cost-effective for persons with annual psychiatric hospital use of 50 days or more, on average (5).

Most authorities agree that it is not practical or necessary to provide ACT for all persons with severe mental illness, but estimating the number of those eligible for ACT is difficult (7). Current guidelines suggest that communities should provide enough ACT teams to serve 20 to 40 percent of those with severe mental illness or .1 percent of the general population (7,8). However, these guidelines have little empirical support.

Methods to estimate the local prevalence of persons needing community support programs (that is, ACT) were developed more than 20 years ago. But these methods could be outdated, because they are based on the number of previously hospitalized persons who require outpatient care, rates of inpatient readmission, and the number of persons with a diagnosis of schizophrenia who are currently in treatment (9). These methods have the potential to overestimate

the prevalence of ACT-eligible persons in that they are not well aligned with contemporary definitions of severe mental illness or ACT eligibility.

ACT-eligible persons are a subset of persons with severe mental illness who, in turn, are a subset of persons with serious mental illness. Serious mental illness is defined as a serious impairment from a mental disorder, such as schizophrenia, for at least one year (10). Severe mental illness is defined by the conjunction of diagnosis of serious mental illness, disability—as defined by enrollment in Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI), for example—and duration of illness—defined in terms of a single episode of hospitalization of at least six months in the past five years or two or more hospitalizations within a year (11). ACT eligibility is typically defined as having a severe mental illness and a minimum of two psychiatric hospitalizations within one year (12), although others have defined it as having a severe mental illness and three psychiatric hospitalizations in the past year (13,14).

Not having clear guidelines for the number of ACT teams that should be developed is of concern because methods and guidelines that overestimate the prevalence of ACT-eligible persons could discourage some communities from developing any teams at all (that is, if the number of persons eligible for ACT is overwhelming) or lead communities to develop more teams than they need, which could limit the cost-effectiveness of ACT. Moreover, it is widely recognized that not everyone who needs ACT receives it (2), but without clear guid-

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Table 1

Prevalence of persons eligible for assertive community treatment (ACT) in a large, urban community in the western United States

Variable	N	Percent eligible (N=743)	Percent eligible and cost-effective (N=461)
Eligible for ACT	743	100.00	62.05
Severe mental illness	1,453	51.11	31.73
Serious mental illness	17,204	4.32	2.68
Mental health users	33,293	2.23	1.38
Adult population	1,346,388 ^a	.06	.03

^a Census 2000 data

ance in regard to how many ACT teams to develop, communities will remain in the dark with respect to planning and providing evidence-based services for persons with severe mental illness. Therefore, this study aimed to use administrative data to estimate the local prevalence of ACT-eligible persons in a large, urban county in the United States, to use these estimates to evaluate the existing guidelines for how many ACT teams that communities should develop, and to estimate the number of ACT-eligible persons for whom ACT would be cost-effective.

Methods

This study used 5.5 years (July 1, 1993, through December 31, 1998) of linked, administrative data from a large, urban community in the western United States to estimate the prevalence of persons eligible for ACT. Person-level data from the local county mental health authority, local hospitals, state hospital, and state Medicaid program were accessed and linked in order to track mental health and hospital service use during the study period. Approval to conduct this study was obtained from the institutional review board at the University of North Carolina at Chapel Hill.

Identifying ACT-eligible persons involved the following steps. First, county mental health records were used to enumerate all mental health users during the study period. Second, among those identified in step 1, persons diagnosed as having a serious mental illness and who had received treatment for at least one year were

identified. The following disorders were included: schizophrenia; affective disorders, with the exception of major depression, single episode; delusional disorders; and psychotic disorders, not otherwise specified. Third, among those enumerated in step 2, persons who had been enrolled in SSI or SSDI at any point in the study interval and had been hospitalized two or more times in a year and had been in treatment for at least two years were identified. And, fourth, persons among those identified in step 3 who had three or more psychiatric hospitalizations within one year were identified as being eligible for ACT.

Results

For the 5.5-year study period, 33,293 county mental health users were enumerated (step 1), of which 51.7 percent (N=17,204) were identified as having a serious mental illness (step 2) and 4.4 percent (N=1,453) were identified as having a severe mental illness (step 3). As Table 1 shows, 51.1 percent (N=743) of persons with severe mental illness who met the eligibility criteria for ACT (step 4), which represents .06 percent of the county's adult population. It would require approximately seven ACT teams to serve these 743 consumers, assuming a full-fidelity ACT team of ten staff and 100 consumers or, alternately, 11 to 13 ACT teams, assuming the more typically sized teams of five or six staff and 60 to 70 consumers.

Also shown in Table 1, with respect to cost-effectiveness, 62.1 percent (N=461) of persons eligible for ACT had more than 50 annual hospital

days, which represents 31.7 percent of the county's population of persons with severe mental illness and .03 percent of its population of adults aged 18 to 64 years. It would require approximately 4.5 ACT teams to serve these consumers.

Discussion

Although ACT was developed more than 30 years ago, communities have had little empirical guidance with respect to how many ACT teams they should develop. Here, administrative data were used to estimate the number of persons eligible for ACT in an attempt to validate existing guidelines for how many ACT teams communities should develop. Moreover, the strategy presented here of estimating the prevalence of ACT-eligible persons is simple and can be used with the administrative mental health data collected in most communities.

On the basis of the results obtained here, developing enough ACT teams to serve 20 to 40 percent of this community's population of persons with severe mental illness could result in a slight underestimate of the number of teams a community needs, whereas developing enough ACT teams to serve .1 percent of a community's adult population could result in a slight overestimate. In light of these findings, communities are likely to need ACT services for approximately 50 percent of their populations of persons with severe mental illness or approximately .06 percent of their adult populations.

Several important points and limitations should be acknowledged, however. For example, the administrative data used here were more than seven years old; thus the findings presented here do not reflect changes in this community's patterns of mental health and psychiatric hospitalization and costs. The strategy proposed here applied to more recent data could yield different estimates of the prevalence of those needing ACT in this community.

Persons who fall just short of being eligible for ACT (for example, two hospitalizations in a year) or those who are eligible for ACT but for whom ACT may not be cost-effective (for example, fewer than 50 annual

hospital days) may still require services that are more intensive than standard care. To this end, the strategy applied here of using administrative data can be used to inform community planning for a range of services—for example, services ranging from case management to stepped-down ACT to full-fidelity ACT teams.

Moreover, the cost-effectiveness computations presented here include only the direct treatment costs of ACT and ignore the additional societal costs often inherent in caring for persons with severe mental illness—for example, housing, benefit maintenance, and criminal justice involvement. This limitation introduces a bias that most likely inflates the percentage of ACT-eligible persons for whom ACT is cost-effective. Thus the findings in regard to the percentage of persons who are eligible for ACT for whom ACT is cost-effective should be interpreted with caution. Also, given the increases in inpatient hospitalization costs over time, it could be that ACT is cost-effective for persons who are hospitalized less than 50 days per year. For example, in 2002 the average population-weighted charge for a day of inpatient care was approximately \$1,216 (15). So, someone who was hospitalized for 50 days over the course of a year would have inpatient service utilization costs of over \$60,000. Although in many cases it is unrealistic to expect that ACT can completely eliminate all inpatient hospital use, inpatient care is far more costly than providing the same person with ACT for \$16,000 a year, for example. Thus, when crude adjustments are made for the rising costs of inpatient care, ACT could be cost-effective for persons who are hospitalized for as few as 16 days per year, although the true number of days is more likely somewhere between 16 and 50.

Using definitions of ACT eligibility that are different than the one proposed here will yield different results with respect to the number of ACT teams that communities need. For example, less restrictive definitions of ACT eligibility (for example, two hospitalizations in a year) would increase the number of persons who are considered to be eligible for ACT. Also,

the definition of ACT eligibility proposed here is reliable in that it will consistently identify those in a community who would benefit most from ACT. However, to some extent the validity of the definition proposed here is questionable because of the potential to systematically undercount those who are eligible for ACT. For example, persons with a diagnosis of severe mental illness who have been hospitalized three times in a year but who are not enrolled in SSI or SSDI would not be considered ACT eligible with the definition proposed here. So, one application of the definition proposed here is that it will identify the minimum number of ACT teams that a community might need to develop.

Our calculation of the number of teams this community would need in order to serve those who are ACT eligible was based on a full-fidelity ACT team of ten staff and 100 consumers. However, it may not be uncommon for ACT teams to have fewer staff and consumers (for example, five staff members and 50 consumers) or for teams to stretch their staff-to-consumer ratios (for example, 1:12 or 1:15). Thus the number of teams a community should develop could vary.

Jail detentions were not included in defining ACT eligibility. This is significant because ACT teams are routinely being called upon to serve consumers who are involved with the criminal justice system (16). In particular, in light of the continuing trend of decreasing hospital use among many communities, defining ACT-eligibility on the basis of hospital use may result in an underestimate of ACT-eligible persons. Given the increasing trend of jail detentions among persons with severe mental illness, some combination of jail and hospital use could yield a more valid definition of ACT eligibility. Further exploration is warranted of the increase in the number of ACT-eligible persons that is realized when jail use is incorporated into the definition of ACT eligibility.

Caution must be used when treating the prevalence of mental disorders and the need for services as one and the same (17). To this end, we took great care to define severe men-

tal illness and ACT eligibility such that the possibility of artificially inflating the estimates of those who need ACT was minimized. Moreover, the estimates presented here of the prevalence of persons who are eligible for ACT take into account priorities for care and cost-effectiveness.

Finally, the findings from one large, urban county may not be generalizable to rural counties, for example, or to counties with different hospitalization patterns for persons with severe mental illness. And, persons eligible for ACT who were not connected to the local mental health system were not counted in the administrative data used here. Thus the findings here may underestimate the true population of ACT-eligible persons.

Conclusions

ACT is an evidence-based practice for persons with severe mental illness and is an expensive and scarce resource in many communities. In the context of the limitations described above, the method presented here of using administrative data to gain estimates of the number of ACT teams that communities may need is straightforward and can help guide communities that are planning to develop new ACT programs.

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