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Annals of Psychiatry and Mental Health

Review Article

Psychiatric Emergency Services in the Rural Community Hospital: An Evaluation of Psychiatric Services in the Randolph Hospital Emergency Department

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Submitted: 14 February 2017

Accepted: 17 May 2017

Published: 19 May 2017

ISSN: 2374-0124

OPEN ACCESS

Keywords

- Emergency psychiatry
- Rural hospitals
- Emergency departments
- Involuntary commitments
- Psychiatric care
- Behavioral health care

Abstract

This project evaluates the impact of having a psychiatrist present in the emergency department (ED) of a rural hospital that lacks a psychiatric unit. Using a mixed-method approach, a team of researchers examined hospital census data and surveyed the ED staff. The results suggest that having a psychiatrist present increased the length of stay in the ED, slightly increased the number of involuntary commitments, slightly increased the number of repeat visits, decreased transfer to private psychiatric hospitals, did not dramatically affect the number of options for care, but appreciably enhanced the ability of the ED physicians to see patients other than those with psychiatric needs. Results of a staff survey indicated that having on site psychiatric services was beneficial to efficiency and quality of care. Further inquiry is needed to fully understand the impact of psychiatric services in rural EDs.

INTRODUCTION

An evaluation of psychiatric services in a rural hospital emergency department

Psychiatric complaints account for a growing number of emergency department (ED) visits, and delivering efficient, clinically appropriate care to this contingent of patients is of increasing importance [1-3]. A developing trend is that, nationally, 7 to 10% of ED visits involve patients with psychiatric needs [3]. In rural areas, approximately 22% of EDs have reported an increase in the number of people seeking psychiatric services [4]. The shortage of outpatient mental health specialty practitioners is common in rural areas, and this may account for the increase in demand for services in the EDs [5].

Within the conventional paradigm, medical professionals untrained to meet the challenging and unique needs presented by mental health patients are required to provide triage services in EDs [3]. Despite their knowledge and skill set, experts in emergency medicine are generally ill-equipped to treat those in crisis [3]. For this reason, clinicians versed in crisis intervention and diagnostics, who are able to quickly evaluate mental health patients and coordinate suitable services, are frequently utilized in the hospital setting [4]. Psychiatrists, with extensive education and training in both medicine and psychopathology, can provide the highly specialized and comprehensive service demanded by those affected by mental illness.

Given the lack of other suitable professional resources in a rural county in North Carolina, a psychiatrist, who was an employee of a local behavioral health agency, agreed to participate in this project. The psychiatrist began working as a consultant with the Transitional Unit (TU) of Hospital Emergency Department (HED) in August 2011. Initially, the psychiatrist was slated to work a few hours each weekday. However, practical demands quickly escalated, and the psychiatrist's hours of consultation increased to six hours or more per day in the HED and TU. In order to assess the impact of the psychiatrist's presence in the HED, the Hospital Foundation funded an evaluation project in partnership with a member of the social work faculty at the University of North Carolina at Greensboro. After receiving IRB approval for evaluating secondary data, this faculty member, along with a research assistant, collaborated with staff at the Hospital to

formulate and implement an evaluation plan. The results of that evaluation are presented herein as a case study.

Behavioral health service system background and rationale for the study

A number of obstacles impede the provision of efficient and effective mental health care in hospitals lacking a psychiatric unit. Insufficiently trained staff, co-morbidities, insurance issues, and the various complexities of mental illness can complicate and protract stays in hospital EDs. Additionally, a decreasing number of beds at inpatient facilities and the ever-growing demand for mental health care leaves those in psychiatric crisis in hospital beds that would otherwise be occupied by medical patients in need [6]. With few step-down options or alternatives, patients languish without treatment and exhaust resources unnecessarily. Depending on circumstances, patients may stay for days with little more than a brief crisis assessment and a disposition for further treatment elsewhere. Ultimately, this amounts to compromised care, is a wasteful expenditure of limited resources, and does little to curtail recidivism [7].

Since at least the mid-2000s, increasing numbers of non-traditional medical needs including behavioral health, substance abuse, and developmental disabilities have challenged rural hospitals like the one in this study. This increase in demand for these specialty services has placed a large burden on many hospitals' limited resources, particularly with regard to emergency department (ED) services. Before August 2011, the Crisis Team (CT) from the local behavioral health agency had worked in tandem with the ED medical staff to deliver and coordinate the appropriate level of service for patients whose presenting complaint was related to behavioral health and/or substance abuse. There was no psychiatrist available in the ED prior to August 2011, so service coordination prior to that time was not seamless, and the unique capabilities of a psychiatrist working in the ED seemed to be a viable and practical way of shoring up some of the existing deficiencies. The expectation was that a psychiatrist's presence and mental health expertise would allow for more comprehensive evaluation of patients; the prescription, monitoring, and adjustment of psychotropic medications; the ordering of, qualified interpretation of, and appropriate clinical response to various laboratory reports; and the professional clout commensurate to a physician's credential.

With these anticipated benefits in mind, one year of funding for a psychiatrist was obtained and a pilot project was initiated to evaluate the impact of a psychiatrist working in the ED. As part of this evaluation, secondary data from the year prior to the implementation of the pilot project (2010-2011) were compared with data during the first year of the project (2011-2012), during which the licensed psychiatrist consulted directly with patients and staff in the HED. The psychiatrist also worked closely with the CT and interacted with the hospital's physicians and other medical professionals. Impact was measured by comparing data from the two time periods for the following outcome variables: average length of stay, percentage of involuntary commitments, percent of repeat visits to the ED for behavioral health and/or substance abuse issues, and utilization of less intensive discharge alternatives.

1. The researchers predicted the following outcomeA decrease in average length of stay for people who presented in the ED with mental health, substance abuse, or developmental disability concerns (length of stay is defined as the time span from admission to the HED to discharge);
2. A decrease in percentage of readmissions to the HED for the treatment of mental illness and/or substance abuse;
3. A decrease in the percentage of involuntary commitments;
4. An increase in the use of less intensive treatment alternatives for mental health and/or substance abuse patients who are in the HED.

The research team also sought information on the impressions of the HED staff about the presence of the psychiatrist.

METHODS

In order to address the burgeoning numbers and growing need to effectively and efficiently triage and treat mental health patients, a rural community hospital in North Carolina serving a county with a population of approximately 142,000, along with a Managed Care Organization (MCO), partnered with a local behavioral health agency to provide the services of a psychiatrist in the HED. The hospital did not have a psychiatric unit, and all persons in need of psychiatric hospitalization had to be referred elsewhere. Because of increased demands for psychiatric beds in the past five years, the wait time for referral to another facility was often extended to three or more days; sometimes as long as seven days. In order to address the logistical problem posed by psychiatric patients awaiting transfer in high-demand ED beds, the hospital established a unit (TU) where such patients could be monitored as they waited for referral to other facilities. A psychiatrist was hired to work closely with the Crisis Team (CT), which consisted of four licensed clinical social workers. The program stipulated that CT would facilitate and participate in the screening and evaluation process, then arrange appropriate placement. The primary role of the psychiatrist was to consult with the HED medical team, and, in some cases, initiate treatment of psychiatric patients to alleviate symptoms and curb the necessity for referral to inpatient care. It is important to note that there were no other medical professionals with a psychiatric background available in the geographic area (e.g., physician's assistant or nurse practitioner). Additionally, telepsychiatry services were not available in the county at the time of this project.

The research team utilized the hospital database and other archival hospital records to gather information relative to the study variables. The study focused on obtaining patient information pertaining to (1) length of stay in the ED, (2) readmission rates (3) type of psychiatric placement (voluntary/involuntary if applicable) and (4) type of discharge (less intensive vs. more intensive). A hospital administrative assistant and an information technology technician worked closely with the research team to provide the data reported below. The study population was selected by including records of all patients whose chief complaint was related to behavioral health and for whom data for both length of stay and readmission was available.

From August 2010 to July 2011 (one year before the psychiatrist was in place) the total was 4,347; from August 2011 to July 2012 (one year during the placement of the psychiatrist) the total number was 2,451. It is unclear why there is such a significant difference in the total number of cases for these two variables in each study period. In order to address bias based on averaging the number of patients seen by the psychiatrist and the number seen by other physicians the averages for variables shown in Table (1) were statistically weighted (see the Notes to Table (1) for an explanation of the weighting process).

For type of psychiatric commitment, data were not available electronically, and the information had to be hand tallied. The sample was chosen by selecting cases from the total number of records available that involved psychiatric commitment and the type of commitment was recorded for those cases. For type of discharge, data were not available on all cases, which limited the sample size for this variable. Although this is a convenience sample, the number of cases available for analysis for each variable exceeded 400, which is generally considered a sufficient number to provide a statistically meaningful sample [8].

HED staff and administrators were surveyed regarding the impact of having a psychiatrist available in the ED. The research assistant and the principal investigator developed the survey based on discussions with the hospital staff and the psychiatrist. Survey questions are presented in Table (4). The survey instrument used a seven-point Likert-type scale, and was made available for a three-week period near the end of October 2012. The instrument was not pre-tested prior to its administration in the study. HED and TU staff members were encouraged to participate but were not required to do so. A total of 20 ED employees (about one third of the staff), including physicians, nurses, other medical staff, support staff, and administrators, participated. Most respondents completed the entire survey. Seven of the respondents reported daily contact with the psychiatrist, four reported some contact twice a week, two reported some contact twice per month, one reported some contact once per month, and five reported rarely having direct contact with the psychiatrist. Respondents were invited to make comments elaborating on their responses to survey questions. Results from the qualitative responses to the survey of ED staff are presented below.

RESULTS

The purpose of this study was to assess the impact of the placement of a psychiatrist in the ED of a rural community hospital on four specific patient care outcomes. It was anticipated that the pilot program would lead to: (1) decreased average length of stay in the ED, (2) decreased readmissions to the ED (3) decreased percentage of involuntary commitments, and (4) increase use of less intensive treatment alternatives involving behavioral health patients. (Table 1) through 3 provide data related to the outcomes.

Length of stay in the ED

It was expected that the placement of a psychiatrist in the ED would result in shorter lengths of stay compared to the time when HED did not have a psychiatrist on staff. (Table 1) presents lengths of stay (in terms of average number of hours) the year prior (2010-2011) to having an on-staff psychiatrist (before pilot study) and the year (2011-2012) with the psychiatrist (pilot study period). A review of the combined lengths of stay during the pilot study period for patients seen by the psychiatrist and ED physicians reveals an average length of time of more than 18hourslonger than before the pilot study period (48.3hours during study vs. 30.0 hours before study). The extended average length of stay was because patients of the psychiatrist were held in the ED over twice as long as compared with patients of the ED physicians.

Readmissions to the ED

Also presented in Table (1) is a breakdown of readmission of patients for behavioral health treatment. The percent of readmissions rates for before the pilot study period and the pilot study period were comparable (52.0% and51.2%, respectively). During the pilot study period the rate of readmissions was 8%higher for the ED physicians compared to the psychiatrist.

Type of psychiatric commitments

Another outcome assessed in this study was the relative

Table 1: Average Length of Stay in ED and Return Visits of Behavioral Health Patients before and During the Pilot Program.

Outcome	Before Pilot Study (NoPsychiatrist) 2010 – 2011	Pilot Study Period (Psychiatrist in ED) 2011-2012		
	Seen by ED Physician (n = 4,347)	Total (n = 2,451)	Seen by ED Psychiatrist (n =1,965)	Seen by Other ED Physician (n =486)
Average length of stay in ED (in hours)	30.0	48.3*	54.1	25.1
Return visits of patients seen for a behavioral health issue) (total/percent)	2,257 (52%)	1,254 (51.2%)	974 (49.6%)	280 (57.6%)

*Weighted average of length of stay in ED for patients seen by the ED psychiatrist and other ED physician. The reason the weighted average is appropriate here is that the average hours for the psychiatrist is based on 1,965 patients and for the other physicians' 486 patients. If we were to simply add the two averages (the one for the psychiatrist and the one for the other physician together) and divide by two we would be under representing the average hours of the psychiatrist (her average is based on over 4 times as many patients) and over representing the average of the other physicians who had less than one-fourth the number of psychiatrist patients). To calculate an average that avoids this bias requires we "weight" the psychiatrist's and other physicians' average by the number of patients each average is based on. The formula for this is ((54.1*1,965) + (25.1*486)) / (1,965 + 486) = (106,306.5 + 121,98.6) / 2451 = 118,505.1/ 2,451 = 48.349

percentage of voluntary and involuntary psychiatric hospitalizations for those cases that involved a psychiatric commitment. (Table 2) shows that, overall, there was no difference in the percent of involuntary hospitalizations between the two comparison periods. However, almost three-fourths (72.6%) of the hospitalizations facilitated by the psychiatrist were involuntary, while the ED physicians' rate of involuntary commitment was about 50% during the pilot study period.

Discharge placements

Comparison of the distribution of discharge placements before the pilot study period and for the pilot study period shows roughly similar patterns as demonstrated in Table (3). It was expected that the presence of the psychiatrist would decrease the need for higher level of care and psychiatric placements. According to Table (3), the percentage of patients transferred to a psychiatric facility showed a modest increase (2.8%) during the pilot study period, when the psychiatrist was on staff. In the pilot study period, a substantially greater percentage of patients seen by an ED physician (71.0%) compared with those evaluated by the psychiatrist (36.8%) were transferred to a psychiatric facility.

Summary of emergency department staff survey

Results of the Emergency Department Staff Survey are presented in Table (4). None of the questions yielded less than a moderately positive rating.

Responses to survey questions three, four, seven, and eight represent results that are most relevant to the research questions targeted in the analysis. For survey item number three - regarding the presence of a psychiatrist as a facilitator of administrator of prescription medications for mental health/substance abuse patients in the ED - 65% of respondents provided the maximum positive rating (7). Question four received the fewest maximum positive ratings, with only45% of respondents reporting that the presence of the psychiatrist was quite a bit helpful in aspects of care related to laboratory tests and other medical evaluations. Question seven, which addressed the efficacy of evaluating mental health/substance abuse patients, determining disposition, and securing placement in an appropriate facility, received the maximum positive rating from 80% of the participants. Question eight asked respondents to rate the overall benefit of having a consulting psychiatrist in the ED. Three-fourths (75%) of respondents rated the benefits of the psychiatrist's presence with maximum favorability.

1. The question regarding the benefits of having the psychiatrist presented produced three commeHaving a psychiatrist in the ED/TU was very beneficial to the patients and the staff. It made the transition time from ED/TU stay lower, allowing the ED to not become a holding unit for mental health patients.
2. Having [the] psychiatrist available helps to get patient medications started while they are waiting to get to [a psychiatric] hospital. The patient may wait for days without appropriate [psychiatric medication] intervention. Once the patients are evaluated by our psychiatrist they are often discharged home to follow-up outpatient.
3. I have been an employee with [study hospital] for almost two years. I have had the opportunity to be with many of the patients that required the assistance of the psychiatrist that we had on staff. Most of our staff are probably not trained for mental health enough to make evaluations. I saw firsthand the importance of [the psychiatrist]. [The psychiatrist's] ability to assess patients and get placement was a tremendous asset to [study hospital]. Since [the psychiatrist's] departure, it seems that the process is not near [*sic*] as smooth or timely.

DISCUSSION

Contrary to the comments noted above by the HED staff, the presence of the psychiatrist did not seem to decrease the length of stay or decrease repeat visits to the ED. The psychiatrist did discharge patients to a less intensive level of care more frequently than ED physicians. However, in light of the extensive training and education of a psychiatrist, and a psychiatrist's professional capabilities, it follows logically that the study psychiatrist may have been more vigilant in curbing transfer to more intensive levels of care - though this was not quantified. During the psychiatrist's tenure, ED physicians were less involved with patients who met the criteria for involuntary commitment, as the psychiatrist consulted with or treated approximately 71.8% of those patients. Without the psychiatrist present during this period, ED physicians necessarily would have been involved with 100% of the patients eligible for involuntary commitment, which would significantly increase the demands for ED physicians' time and attention given to these patients. The advantages, including cost/benefit afforded by this diversion were not captured directly in this study and should be addressed in further studies.

Table 2: Impact of the Psychiatrist on Involuntary vs. Voluntary Commitments*.

Commitment Type	Before Pilot Study (No Psychiatrist) 2010 – 2011	Pilot Study Period (Psychiatrist in ED) 2011-2012		
	Seen by ED Physician (n = 1,061)	Total (n = 786)	Seen by ED Psychiatrist (n = 498)	Seen by Other ED Physician (n = 288)
Voluntary (number/ percent of total patients seen)	418 (39.4%)	283 (36.0%)	137 (27.4%)	146 (50.7%)
Involuntary(number/ percent of total patients seen)	643 (60.6%)	503 (64.0%)	361 (72.6%)	142 (49.3%)

*The information for this table was not available electronically so a manual count was necessary. Data were selected from the total number of cases reflected in Table 1.

In terms of increasing use of less intensive discharge options, the psychiatrist transferred patients to state and private hospitals (conventional treatment facilities) considerably less frequently (one-third vs. three-fourths of patients seen) than ED physicians. Prior to and during the time of the psychiatrist's presence, patients seen by the ED physicians were hospitalized more frequently and were less likely to be discharged home or to a lesser level of care. The psychiatrist did opt for a lesser level of care in about two-thirds of the cases, which suggests that she/he was probably more effective in reducing the number of psychiatric hospitalizations from the ED than the non-psychiatric ED physicians. This suggests a number of possible explanations that warrant further exploration. One, the psychiatrist may have provided more comprehensive/discriminating assessments, resulting in fewer determinations that hospitalizations were needed. Two, the psychiatrist may have provided more effective brief treatment that stabilized patients, enabling them to be discharged home or to a non-psychiatric facility. Three, the psychiatrist may have simply not seen the patients' presenting symptoms as warranting placement and therefore was disinclined to recommend inpatient hospitalization. Four, the ED physicians had less confidence in their skills or abilities to assess psychiatric functioning and were more cautious and thus made more referrals to a psychiatric facility. All of these are possible reasons for the differences in discharges observed in this study – future research should explore this question further. [9] cautioned that extant ambiguity in the involuntary commitment process has long confounded clinicians and researchers alike. Further inquiry is needed to examine these potential explanations.

The preponderance of the study results do not support the anticipated outcomes that having a psychiatrist in the ED would reduce the length of stay or reduce the frequency of involuntary commitment; however, there was a reduction in the number of transfers to more intensive levels of care. ED staff members who responded to the survey were supportive of the psychiatrist's

Table 3: Discharge Placements Post ED Visit*.

Discharge Type	Before Pilot Study (No Psychiatrist) 2010 – 2011	Pilot Study Period (Psychiatrist in ED) 2011-2012		
	Seen by ED Physician (n = 3,771)	Total (n = 1,951)	Seen by ED Psychiatrist (n =1,479)	Seen by Other ED Physician (n =472)
Home, skilled nursing facility, home, or left against medical advice	2,173 (57.6%)	1,070 (54.8%)	933 (63.1%)	137 (29.9%)
Private psychiatric facility	1,582 (42.0%)	879 (45.1%)	544 (36.8%)	355 (71.0%)
State psychiatric facility	16 (.42%)	2 (.13%)	2 (.10%)	0 (0%)

*Because of missing data, the number of cases included in this table is less than the totals included in in Table 1

Table 4: Number and Percent of Responses to Emergency Department Staff Survey..

Scale: 1= Not at all to 7= Quite a bit	Total N=20			
	Rating			
Question	7	6	5	No Response
1. How has having a psychiatrist in the Emergency Department (ED)/Transitional Unit (TU)improved the continuity of service for patients in need of mental health/ substance abuse services (i.e., the transition from ED to TU, and from ED/TU to another facility)?	15 (75%)	5 (25%)	----	----
2. How has the psychiatrist's presence in the ED/TU eased/lessened the overall pressure imposed on the medical staff by the unique needs of mental health/ substance abuse patients?	15 (75%)	3 (15%)	2 (10%)	----
3. How has having a psychiatrist in the ED/TU facilitated the prescription and administration of medications for mental health/substance abuse patients?	13 (65%)	3 (15%)	4 (20%)	----
4. How has having a psychiatrist in the ED/TU streamlined the process of determining the necessity of and obtaining important laboratory tests and other medical evaluations?	9 (45%)	4 (20%)	6 (30%)	1
5. How has having a psychiatrist in the ED/TU enhanced your understanding of the characteristics, manifestations, and appropriate responses or courses of action to mental health/substance abuse presentations?	12 (60%)	3 (15%)	5 (25%)	----
6. How has having a psychiatrist in the ED/TU alleviated the concerns of patients related to the intersection of their medical and psychiatric complaints?	13 (65%)	3 (15%)	4 (20%)	----
7. How has having a psychiatrist in the ED/TU increased the efficiency of evaluating mental health/substance abuse patients, determining their disposition, and securing their placement at an appropriate facility?	16 (80%)	4 (20%)	----	----
8. Overall, how would you rate the benefit afforded by the presence of a consulting psychiatrist in the ED/TU?	15 (75%)	5 (25%)	----	----

presence and suggested that the demand on their time was significantly reduced. Additionally, comments included in the staff survey indicate that respondents believed that having the psychiatrist present improved the quality of mental health and substance abuse evaluation and afforded a more seamless process of evaluation and transfer. There were limitations to the study and they are discussed below.

LIMITATIONS

One of most salient limitations to this study related to the unavailability of data on total event/cost relative to the services of the psychiatrist and services provided by the HED. An event/cost analysis comparing costs of services at the HED versus costs of other services had patients not had the ability to be seen by the psychiatrist would be important in having a fuller picture of the psychiatrist's impact. For this study, alternative professionals to the psychiatrist were not available (e.g., nurse practitioner, physician assistant); therefore, we cannot compare how other disciplines might have affected the variables in the study. Using electronic data sets limited the team in terms of ability to access missing data or data on all cases. There is a large difference in the total number of behavioral health cases seen in the ED during the two periods under study. There is no clear explanation for why this is the case. The data set was limited and information on the relevant variables was not available on every case; thus, the variables could not be compared consistently across cases. The lack of electronic data regarding involuntary commitments prohibited the research team from fully comparing the data from one study period to the next. Similarly, data regarding discharge placements were not available for all cases. Data were not available to delineate the criteria used to determine whom the psychiatrist saw, determine which patients were involuntarily committed and why, or to investigate the basis for releases from involuntary commitment completed by the psychiatrist compared to those performed by the ED physicians. Levels of acuity were not measured or quantified and should be addressed in future studies. There were no data on diagnoses, co-morbid conditions, or medications prescribed available to the research team. There was no patient demographic information available, including information about income levels or insurance status. Information about expenditures and any cost savings was not available.

RECOMMENDATIONS

There are a number of directions of inquiry highlighted by the present study, and other potentially meaningful variables arose that could be incorporated in future research. For example, more detailed data about how having a psychiatrist present affects costs by freeing ED physicians to more efficiently treat other patients would be useful. Additionally, event/cost analysis would help in recognizing more of the benefits of having a psychiatrist present in the emergency department. In facilities without psychiatric units, ED physicians must expend considerable time and energy caring for psychiatric patients. As discussed by [3], such practitioners' lack of expertise with the psychiatric population presents a substantial challenge. Given that improving efficiency and reducing cost are often among the priorities of hospital administrators, government officials, and insurers, the psychiatrist's impact on length of stay could be more fully understood if cost analysis were addressed.

Measuring quality of care is often difficult but important. If possible, assessing quality of services in the ED would be one way to ensure that patients receive the best care in the most efficient manner. Having a psychiatrist or psychiatric professional available either face-to-face or remotely would seem to be a step in enhancing quality; however, more inquiry is needed in this area to better understand if and how this is true. It would be useful to survey the patients themselves to glean information on quality of care.

Although previous studies already have established that the ED is often the primary entry point for inpatient psychiatric services [10], there also may be poorly understood reasons behavioral health patients so frequently choose the ED as a location for treatment. In addition to collecting more subjective feedback regarding the quality of services provided in the ED, surveying patients might lend insight into the challenges, barriers, and shortcomings encountered in accessing community-based outpatient services.

There is growing concern that hospital EDs are incapable of, or underequipped to meet, the needs of psychiatric patients, and it is important to better understand the efficacy of attempts to meet those demands. Exploration of all options for treating psychiatric patients is important, including the use of technology. Since the conclusion of this study, the study hospital has begun using telepsychiatry in the ED, as there is no longer a psychiatrist available.

Based on the findings of this study, we recommend that rural emergency departments lacking psychiatric treatment units continue to experiment with and appraise various approaches to addressing the needs of psychiatric patients (e.g., use of physicians' assistants, nurse practitioners, or telepsychiatry services). As [11,12] asserted, telepsychiatry seems to be an effective means of delivering psychiatric evaluation and services in rural areas. We recommend continued evaluation of telepsychiatry and other similar services as viable alternatives to face-to-face psychiatric services.

ACKNOWLEDGEMENTS

Special thanks to the Randolph Hospital Foundation for funding this project.

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Cite this article

Holst A, Poole J, Gruber KJ (2017) Psychiatric Emergency Services in the Rural Community Hospital: An Evaluation of Psychiatric Services in the Randolph Hospital Emergency Department. Ann Psychiatry Ment Health 5(3): 1104.