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Effect of Case Management on Frequency of Emergency Department Visits by Persons with Mental Illness: A Systematic Review

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Abstract

A problem in healthcare is the increasing number of emergency department visits by repeat users with a comorbid mental illness. These visits increase costs, patient wait times, demand for service, overcrowding, and fragmented care; they may decrease quality of care and effective treatment. The purpose of this study is to identify, review, and critically appraise the evidence about the effect of case management on repeat emergency department (ED) use in those with comorbid mental illness. A systematic review of 21 studies was performed. All explored mental illness, frequent visits to the ED, and interventions. These twenty-one studies were reviewed and formulated into a systematic review, ultimately attempting to determine whether or not people with serious mental illness and comorbid medical conditions over the age of 18 years presenting multiple times to the ED benefit from case management, therefore decreasing their number of visits. Due to a lack of evidence about case management in the ED, the authors recommend further research be done on interventions offered to the seriously mentally ill in general. In addition, research on use of other healthcare facilities, such as urgent care facilities, would be beneficial to identify if any preventative measures are being utilized prior to coming to the ED.

Frequent emergency department (ED) visits by people with serious mental illness (SMI) has become an issue in the healthcare system (Wooden, Air, Schrader, Wieland, & Goldney, 2009). This is a problem because people with SMI who frequently use ED services may contribute to the high numbers of patients using ED services, which may increase overcrowding, wait times and decrease effectiveness of ED services and quality of care of all patients (Bodenmann, Velonaki, Ruggeri, Hugli, Burnand, Wasserfallen, Moschetti, Iglesias, Baggio, & Daeppen, 2014; Little, Clasen, Hendricks, & Walker, 2011). Overcrowding is defined as a lack of staffing and resources compared to the number of patients who need to be treated, assessed, and discharged (Lo, Choi, Wong, Lee, Yeung, Chan, & Chair, 2014). Approximately 18.6% of adults in the United States have been diagnosed with some type of mental illness (Any Mental Illness (AMI) Among Adults, 2013). Liu, Nagurney, Chang, Parry, Smulowitz, & Atlas (2013) found that out of 91,325 ED visits in 2010, frequent users accounted for 13,303 visits. Out of 65,201 patients, 2,496 were considered frequent users (Liu et al., 2013), most of whom were visiting the ED due to a mental health reason (83.6%) (Liu et al., 2013). Although this is less than 4% of overall visits, the percentage of costs for these frequent user visits is high. The cost and burden created by these visits is taking time, money and resources away from other more urgent situations.

Of the people who visit the ED with a mental illness, the most prevalent mental health issues were anxiety, depression, and substance abuse. Of a sample size of 105,687 patients, 13,888 presented to the ED with anxiety, 32,889 presented with depression, and 11,157 presented with substance abuse (Doupe, Palatnick, Day, Chateau, Soodeen, Burchill & Derksen, 2012). They may also demonstrate psychotic or aggressive behavior (Shafiei, Gaynor, & Farrell, 2010), which may make it difficult for staff to perform work in ED settings. Further, frequent ED

use by this population increases hospital spending on ED services and health care costs (Bodenmann et al., 2014, Liu et al., 2013, Little et al., 2011, & Shafiei et al., 2010).

It is important to identify strategies and interventions to decrease frequent ED use by people with serious mental illnesses. The purpose of this systematic review is to identify, review, and critically appraise the evidence about the effect of case management, compared with standard care, on frequency of ED visits by persons with serious mental illness (SMI) who are over the age of 18 years. Practice recommendations are advanced based on the appraisal of the evidence. The dependent variable is the frequency of ED visits in a population of persons over the age of 18 with a serious mental illness (SMI) and comorbid medical conditions. The independent variable is case management intervention. The following PICO question is answered: In persons with SMI and comorbid medical conditions over the age of 18 years presenting multiple times to the ED, how does case management, compared with standard care, affect number of visits?

Methods

The researchers performed a systematic review of the literature on adults over the age of 18 years presenting with SMI, comorbid medical condition, and frequent ED visit. A specific time frame was not included; thus, studies varied in time frame. The databases were Search-A-Roo from the University of Akron's library research website, CINAHL Plus with full text, and MEDLINE with full text. The searches were conducted in the month of October, 2014. The main searches were based on keywords of "mental illness", "frequent emergency department use," and "case management." Additional keywords included: "emergency department," "emergency room," "mental health," "frequent use," and "interventions." Additional inclusion criteria included publication dates from 2009 to the present, English language, and full text

available. The researchers selected journals that identified causes of frequent visits and interventions to decrease visits. Exclusion criteria consists of studies of people under the age of 18, articles published before 2009, and articles that did not conduct research about frequent ED use. The quality of the research was adequate based on preliminary examination, because multiple articles were used with multiple different variables in order to include all of the research variables. Out of two hundred studies, 21 were retained for the review. Articles were discarded because they did not include research findings about mental illness, consequences of frequent use or interventions to decrease ED use.

Review of Literature

The twenty-one articles retained were split into two subgroups. The subgroups included: (a) factors associated with frequent use of the ED and (b) the effect and cost effectiveness of case management on frequent ED use. Also discussed are gaps in knowledge in the current literature and limitations of the studies. By studying these factors, the researchers were better able to determine who presents to the ED and if case management is effective.

Factors Associated with Frequent ED Use

Frequent use of the emergency department has many different contributing factors. These factors include noncompliance with medical treatments, acute episodes of serious mental illnesses, substance abuse, and intellectual or developmental disabilities (Aagaard, Aagaard, & Buus, 2104; Brennan, Chan, Hsia, Wilson, & Castillo, 2014; Doupe et al., 2012; Downey, Zun, & Burke, 2010; Hakenewerth, Tintinalli, Waller, Ising, & DeSelm, 2013; Ku, Scott, Kertesz, & Pitts, 2010; LaCalle & Rabin, 2010; Little et al., 2011; Liu et al., 2013; Lunsky, Balogh, & Cairney, 2012a; Lunsky, Lin, Balogh, Klein-Geltink, Wilton, & Kurdyak , 2012b; Mojtabai, Cullen, Everett, Nugent, Sawa, Sharifi, Takayanagi, Toroney, & Eaton, 2014; Nossel, Calmes,

Brown, Kreyenbuhl, Goldberg, Fang, & Dixon, 2010; Shafiei et al., 2010; Wooden et al., 2009). Various things contribute to noncompliance with medical treatments. People have been noncompliant due to not having an appointment with their primary care doctor soon enough, not having transportation to the primary care doctor, waiting too long after arriving to the appointment, not having convenient office availability times, and not being able to call the offices by phone (Mojtabai et al., 2014). Patients who repeatedly present to the ED commonly come in with acute episodes of schizophrenia, anxiety, personality disorders, suicidal attempts and ideation, and any other general psychiatric crisis, however researchers have presented inconsistent findings about which of these mental health illnesses are most prevalent (Aagaard et al., 2104; Downey et al., 2010; Hakenewerth et al., 2013; Liu et al., 2013; Lunsky et al., 2012b; Wooden et al., 2009). For example, a retrospective cohort study by Liu et al. (2013) reviewed 91,325 ED visits and found that most people go to the ED due to medical or surgical problems; however Lunsky et al.'s (2012a) population-based study found that the most common predictor of visits is having a history of ED visits. In one non-experimental design study, it was found that 61% of all mental health diagnoses in the ED included stress, anxiety and depression (Hakenewerth et al., 2013). However, anxiety, depression and substance abuse were found to be most prevalent in another non-experimental study of 105,687 patients (Doupe et al., 2012). Overall, researchers have consistently found that substance abuse, such as drug seeking behavior and detoxification, is one of the most common reasons for presentations to the ED (Aagaard et al., 2014; Brennan et al., 2014; Doupe et al., 2012; Downey et al., 2010; Ku et al., 2010; LaCalle & Rabin, 2010; Little et al., 2011; Liu et al., 2013; Nossel et al., 2010; Shafiei et al., 2010). Finally, the last contributing factors are developmental and intellectual disabilities because this population is not as knowledgeable about appropriate use of the ED (Lunsky et al., 2012a;

Lunsky et al., 2012b). Identifying factors associated with frequent use of the ED is important in determining interventions in an effort to decrease visits.

Effect of Case Management on Frequent ED Use

Standard care in the ED would be considered routine discharge education, including recommended follow-up visits, medication instructions, and other specific medical care directions. According to Bodenmann et al. (2014), case management is a common intervention in the emergency department that mobilizes multidisciplinary teams to handle difficult situations. Case management is focused on the patient as a whole, is flexible, and covers a wide variety of issues such as referring the patient to a practitioner in the community, offering substance abuse services, providing assistance in finding health insurance coverage, and assisting in finding stable housing and schooling for children (Bodenmann et al., 2014). It is guided by a case manager who provides coordination and support throughout the process (Bodenmann et al., 2014).

The effect of case management for mental illness in the ED has been studied infrequently within the past five years. After Wooden et al. (2009) studied the clinical and demographic characteristics of people who visit the ED with mental disorders, they concluded that it would be worthwhile studying the effectiveness of case management to decrease ED use. Kumar and Klein (2012) studied the effect of case management in 960 frequent ED users. Although they found case management did not decrease inpatient admission rates, alcohol use, and substance use, they did find that it reduced ED costs, improved housing status, decreased lack of insurance and homelessness rates, improved follow-up primary care appointments, and decreased use of emergency ambulance services among mental health and substance abusers. However, case management was less effective in decreasing visits in highly frequent ED users. These changes

in the patient's healthcare overall increased their quality of life. A correlation was found between the intensity of the case management program and the resources available that lead to more successful outcomes. Although the researchers did not specifically study patients with mental illnesses, they did study a variety of different adult patient populations (Kumar & Klein, 2012). Overall, the authors determined that case management is effective in reducing ED use.

However, in another study that evaluated 297 patients frequently utilizing the ED, researchers found that only 26% of this population used case managers after their ED visits. The people that did not follow up with case management had more severe psychiatric disabilities. Although case management may be necessary and effective when used properly, there is no way of assuring that patients continuously engage with the case manager. While other studies show that case management is beneficial, this study demonstrates the need for further research in order to verify that the 26% that used case management benefited from it (Weiss, Schechter, & Chang, 2013).

Cost effectiveness is a large consideration in the problem of ED overuse. Case management has decreased health care costs by decreasing number of ED visits, acute care admissions, and length of stay (Bodenmann et al., 2014; Intensive CM cuts ED visits, hospitalization, 2012). When case management was utilized, it was found that the number of ED visits decreased by 42% saving $157,769, acute care admissions decreased by 44% saving $370,475, and the length of stay decreased by 1.2 days (Intensive CM cuts ED visits, hospitalizations, 2012). These findings of significant savings are consistent with those of Bodenmann et al. (2014), who found that case management decreased ED use, which in turn decreased the consequent costs. In general, researchers have found that hospitals save a

significant amount of money when putting case management into effect over standard care procedures.

Gaps and Limitations

There are many gaps in knowledge and limitations in the state of the science and in studies. First, there are not definite ways to predict ED overuse amongst the psychiatric population due to the multitude of reasons that lead to the person's decision to come to the ED (Buus, 2011). There are also few studies on the effect of ED-based case management interventions and mental health patients visiting the ED. It is apparent that frequent ED use is an issue, but there is little diversity of interventions being implemented to address this issue. Other limitations are that the definition of frequent use widely varies across studies, the sample size of each study varies, and all studied various components of ED overuse. For example, sample sizes ranged from 118 participants to 788,005 participants (Nossel et al., 2010; Brennan et al., 2014). Frequent use was defined differently by all of the studies reviewed ranging from 5 visits to 19 visits per year (Liu et al., 2013; Bodenmann et al., 2014). Therefore, it is difficult to compare the studies across the board. It is also difficult to tell if patients are frequently visiting more than one ED (Weiss et al., 2013).

In addition, most samples were convenience samples, decreasing reliability and generalizability of the studies. Each article focuses on different types of psychiatric disorders, making it difficult to narrow down what disorders are the most problematic in terms of frequency of ED use. Next, the majority of the articles reviewed have a low level of evidence, which lessens the validity of the findings. Many of the articles are non-experimental, which is categorized as a Level IV out of VII. Level I is considered the highest level of evidence, therefore provides the most reliable information. When performing a study that is non-

experimental, the level of evidence is low because the authors are interpreting an issue, but not controlling or manipulating the subjects. Finally, 43% of the studies which were examined were not conducted in the United States. With varying locations of the studies, it is difficult to determine whether the different country's insurance policies among other factors have an impact on the frequent ED use. All of these factors limit the reliability of findings.

Recommendations

Nurses are a large part of the healthcare industry. In the ED they are providing the majority of direct patient care therefore frequent users are taking time away from other patients who could have more pressing issues. Eliminating frequent users in the ED would decrease the nursing workload ultimately lessening the chance of burn-out, improving quality of care and staff satisfaction and decreasing the demand for nurses. This research is valuable to nursing practice because in addition to EDs being affected, the hospital floors would also have an influx of patients. An increase in the use of primary care providers would help address issues that could be managed outpatient. Therefore there is a greater need for nursing research on how frequent ED use can be prevented.

In conclusion, this systematic review of the literature has indicated a need for more research on the topic of how case management affects frequent use of EDs by people with serious mental illness. The researchers only found three articles specifically about case management, while there were 18 articles addressing the issue of frequent users. Through the research, it is evident that frequent ED use is an issue due to the plethora of articles found; however, there are minimal studies on specific interventions used to decrease these visits. The authors recommend that further research needs to be completed specifically comparing case management to other interventions to discover the most successful means of minimizing frequent

use of the ED. For example, conducting a study in multiple EDs, examining the population of frequent ED users with SMI and using multiple interventions would be beneficial. Some of these interventions could include patients receiving case management versus patients receiving routine discharge education. By directly comparing these interventions, researchers would be able to conclude the most successful interventions. The authors also recommend this study be done prospectively so that the patient's care and case management intervention can be closely monitored. This is important to obtain because the frequent use of the ED has such an impact on the hospital systems.

Aagaard et al. (2014) recommends that psychosocial research be conducted on the causes of frequent use in people with SMI so that EDs can better manage the care of these patients leading to decreased future visits. Kumar and Klein (2013) found that a longer follow up period is necessary to allow adequate time for significant behavioral changes. In their study the follow up period was five months for high frequency ED users; this time frame did not yield substantial changes in behavior (Kumar & Klein, 2013). Liu et al. (2013) found that there are other comorbid problems in addition to the substance abuse and mental health issues that cannot be ignored. Some of these complaints included respiratory, cardiac, and abdominal symptoms. The authors of this systematic review agree with the recommendations provided in the literature. These suggestions would be beneficial in a future study on case management.

It is further unknown if frequent users are visiting other health care facilities. Most people are aware that the ED is often used as physician's office however, additional research is needed to assess if patients have access to primary care providers or urgent cares and are utilizing them prior to visiting the ED. The use of primary care providers is important in order to assess risk factors and prevent illness in an attempt to decrease ED visits. With the completion

of these recommendations, the authors hope that in the future the incidence of frequent ED users will be minimized, therefore allowing healthcare professionals to provide better care for patients and saving hospitals unnecessary costs.

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Appendices

Appendix A: EBP Review of Literature Summary Table…….18

Appendix A

EBP Review of Literature Summary Table

APA formatted reference[1]	Background of Clinical Problem. Purpose statement. Research question[2].	Clinical Practice Setting. Population, Sampling methods, sample size.	Design. Level of Evidence.	Evidence-based Findings	Practice & Research Implications	****Limitations[3]
1 Lunsky, Y., Balogh, R., & Cairney, J. (2012). Predictors of emergency department visits by persons with intellectual disability experiencing a psychiatric crisis. *Psychiatric Services, 63*(3), 287-290. Primary source	Background: Mental illness in adults with intellectual disability is fairly common, being 40%, and the majority of hospital admissions with this population is due to the mental illness. This study examined predisposing, enabling, and clinical need factors that predict emergency department use by adults with intellectual disability who experience a psychiatric crisis, defined as "an acute disturbance of thought, mood, behavior, or social relationship that requires immediate attention as defined by the individual, family,	Setting: three urban centers in Ontario Canada Population: adults with an intellectual disability living in urban centers in Ontario, Canada who experienced at least one psychiatric crisis during a 2 year period Sampling method: Data was collected from adults with intellectual disabilities. The people who visited an emergency department due to a	Design: Staff from 34 participating mental health and social service agencies collected client background information. The informants provided information about the crisis. The informants also were trained in procedures for collecting data by the two research coordinators. Then, a multiple logistic regression analysis was performed for 576 individuals who had all of the correct data, grouping the categories in the Anderson model. Finally, the statistical analyses were completed with SPSS	Individuals who lived with family were more than four times more likely than someone living in a group home to visit the emergency department. People who did not have a crisis plan were 2.21 times more likely and did not have a primary care physician were 3.20 times more likely to visit an ED. People previously involved in the criminal justice system were 61% less likely to visit	People with an intellectual disability, who could experience a psychiatric crisis, should have a primary doctor and a proactive crisis plan to prevent the utilization of the emergency department. When people are living in group homes, it is helpful that the home has a protocol for when a psychiatric crisis occurs.	The limitations in this study included not being able to obtain detailed data for the entire population of person with intellectual disability living in the region. Another issue is that this study only provides information on the crisis from the perspective of the service provider and is missing the information from the perspective of the individual, the family, and the ED staff. No information was

[1] Indicate if primary or secondary source and if quantitative, qualitative or mixed methods.
[2] Construct purpose statement and research question is not stated in article. Identify independent variables, dependent variables, and population.
[3] Identify independent variables, dependent variables, and population.
[3] List limitations related to validity and reliability of methods and applicability of findings. Consider strengths and weaknesses of study. [3]

Mixed Methods	or community." Purpose Statement: To identify predictors of emergency department visits for psychiatric crises by applying the Anderson's behavioral model of health services (which says that a combination of predisposing, enabling, and need variables leads individuals to use health services). Research question: Do adults with an intellectual disability during psychiatric crises have predictors as to why they visit the emergency department over a 2 year period? Independent variable: predisposing factors (level of disability/age/gender/cultural background), enabling factors (type of residence and access to primary care/crisis	psychiatric crisis between 2007 and 2009 were compared to those who did not. Sample size: 750 people	(a statistical software). Level of Evidence: Level 3—cross sectional study	the ED. The highest likelihood were the individuals that had an ED visit history compared to those who did not.		collected on income level, which could come into play as to why the ED was used.

	plan/daytime activity/counseling services/behavioral therapy/psychiatrist), need factors (history of ED visit) Dependent variable: persons who visited the emergency department in response to their first crisis and those who did not during their first crisis.					
2 Aagaard, J., Aagaard, A., & Buus, N. (2014). Predictors of frequent visits to a psychiatric emergency room: A large-scale register study combined with a small-scale interview study.	Background: "The role of the psychiatric emergency services has undergone extensive changes following a significant downsizing of the number of psychiatric hospital beds during the past decades. A relatively small amount of "frequent visitors" accounts for a disproportionately large amount of visits to psychiatric emergency services. Increasing workloads in psychiatric emergency services make it more difficult for psychiatric	Setting: psychiatric emergency room at Aarhus University Hospital (AUH), Risskov (which has open access 24 hour/day) Population: frequent psychiatric emergency service visitors (most are residents in Aarhus County) Sampling Method: Data was drawn	Design: A large-scale register based logistic regression analysis combines with a small-scale explorative, interpretative interview study. Register data was drawn from the Danish Central Psychiatric Research Register. Four-year cohorts of patients with at least one visit to the psychiatric ED were followed for three years to identify general trends of predictors throughout this period. A purposeful sample of	The evidence based findings found that the average age of the patients were approximately 41 years. The patients that lived in sheltered housing visited the ED more frequently over the years: 26 patients in 1995 and 78 patients in 2004 (there was no increase in sheltered housing). Patients who were diagnosed with F20	The practice and research implications that were found include that implementation of managed care did not prevent visits to the emergency room. Managed care actually just delayed patient's visits to the ED because they thought managed care was more of a supplement to the ED. Another thing found is that sheltered housing does not prevent frequent visits, but instead is a predictor to frequent visits. This study found that more research needs to be done on frequent visitors in order to design some clinical interventions to avoid frequent emergency department use.	The limitations they found were that a frequent visitor has no standard definition, studies are conducted in different psychiatric healthcare contexts, which produce different pathways to care and have different gate-keeping mechanisms, and the study objects vary. These limitations makes it hard to identify

International Journal Of Nursing Studies, 51(7), 1003-1013. doi:10.1016/j.ijnurstu.2013.11.002 Primary source Mixed methods	emergency staff members to find resources for providing quality care, and they may be antagonistic towards this resource-demanding group of frequent visitors." <u>Purpose statement</u>: To identify predictors of frequent use of a psychiatric emergency room at a Danish University Psychiatric Hospital through a 12-year period (1995-2007) and to speculate on how changes in the mental healthcare services affect predictors of frequent use through time. <u>Research question</u>: Why do people with mental health issues compared to non-mental health people, frequently visit (visit more than or equal to 5 times per year) a Danish psychiatric emergency room over a 12 year	from The Personal Identification Register and The Central Psychiatric Research Register. The data was obtained for individuals with at least one visit to the psychiatric emergency room, AUH, Risskov, during the years of 1995, 1998, 2001, or 2004. <u>Sampling Size</u>: 8,034 people over these four years	15 frequent visitors were interviewed about their personal motives for visiting the psychiatric ED, their care pathways, and social network and support. <u>Level of Evidence</u>: Level 4—non-experimental	Schizophrenia, F2-residual, or F30-31 bipolar overall decreased. F3-residual and F4 + F6 Anxiety and Personality Disorders increased. The number of patients with substance abuse did not change proportionately, but increased by 6% per year when it came to forensic arrangement. With patients who had a severe mental illness, there was a large increase in the frequency of contact to the psychiatric emergency rooms from 1995 to 2001, but their mental illness did not progress. Most of these visitors felt comfortable visiting the psychiatric emergency room, but were slightly embarrassed by it.		a consistent number of predicting factors of recurring visiting and frequent visiting at psychiatric emergency services.

	period and what can the Danish mental healthcare service do to affect these predictors over time? Independent variable: managed care and sheltered homes Dependent variable: emergency department visits Population: frequent visitors to the Danish psychiatric emergency department			Each visit always included a gate-keeping assessment of the patient's needs. Finally, the patients that presented themselves to the emergency room found that they were unable to go to their normal social network in a crisis. These frequent visitors thought as the psychiatric emergency room as a supplemental thing in addition to their normal networks.		
3 Wooden, M., Air, T., Schrader, G., Wieland, B., & Goldney, R. (2009). Frequent attenders with mental disorders at a general	Background: There has been an increasing demand on general hospital Emergency Departments (ED) and some of this demand is caused by frequent attenders. Purpose Statement: The aims of the present study were to define the	Setting: Queen Elizabeth Hospital Woodville South, Australia ED Population: Attenders of the ED (frequent attenders with mental health issues)	Design: This studied researched people who had 8 or more visits to the ED between 1 July 2006 and 15 March 2007. Mental health disorders were identified by them having presented with a psychosocial problem that had resulted in an International Classification of	Between 1 July 2006 and 15 March 2007, there were 11594 people between the ages of 18 and 65 years old. Out of these people, 54 had a mental disorder and came to the ED 8 or more times. 30 people were men and 24	Overall, they found that there is a relatively small number of frequent attenders with mental health disorders and they do not impose an appreciable burden upon general hospital emergency departments (but also visit other EDs in the area) and seems to not have been addressed. This issue may need to be addressed because general hospitals have a limited degrees of expertise in regard to the management of psychosocial	The limitations in this study included the adequacy of documentation in relation to diagnoses could have been influenced by the recording practices of individual ED personnel, the

hospital emergency department. *Emergency Medicine Australasia, 21*(3), 191-195. doi:10.1111/j.1742-6723.2009.01181.x Primary source Mixed methods	clinical and demographic characteristics of patients with mental disorders who frequently attended a general hospital ED, to determine whether those persons had additional attendances at the ED of other general hospitals in the same city and to assess whether they had documented specific mental health-care plans. Research question: Do frequent attenders (people who have had 8 or more visits) in the Emergency Department, who have mental health disorders between the ages of 18 and 65 years, have additional attendances at other Emergency Departments in the area with specific mental health-care plans between 1 July 2006 and 15 March 2007? Independent variable:	Sampling method: A retrospective descriptive study of those who attended the Queen Elizabeth Hospital, Woodville South, Australia ED on average at least once per month between 1 July 2006 and 15 March 2007. Sample size: The sampling size was 11594 attenders, which included 54 frequent attenders	Diseases, Tenth Revision psychiatric diagnosis. They also used other databases to determine if these frequent visitors visited any other ED in the area. Level of Evidence: Level 4—non-experimental Cross-sectional study	people were women. The average age was 42.8 years from a range of 22 to 65 years. These people represented 4.5% of total ED visits from people between 18 and 65. The average number of attendances was 13.6 per patient and ranged from 8 to 63 visits. The average person who was not mentally ill had 1.4 visits. 34 of the 54 frequent attenders visited other hospitals on 410 occasions, averaging 12.1 additional visits. The total number of frequent attenders across the area was 1145, averaging 21.2 visits. Schizophrenia was the most common disorder, followed by personality and anxiety disorders.	factors, especially on weekends and after hours. To fix this, more adequate service and communication between psychiatric EDs would be helpful. After reviewing other studies, they are unsure that increased utilization of case management would be worthwhile, even though fewer than half of the frequent visitors were provided with additional community services. They found that intensive multidisciplinary care resulted in fewer admissions, but intensive case management resulted in more ED utilization. Overall, more detailed examination should occur in ways to decrease ED use.	absence of detailed diagnoses, the definition of frequent attender is open to interpretation, they drew certain inferences from the absences of documentation in the clinical records (which does not imply that management was not appropriate), and frequent attendance for certain people might be inevitable.

	additional attendances Dependent variable: frequent attenders of the ED with mental health disorders Population: frequent Emergency Department attenders			43% of the frequent attenders had specific mental health-care plans, while 2/3 of these were assigned to a mental health team. Fewer than half of the frequent attenders with mental disorders had been provided with additional community services.		
4 Mojtabai, R., Cullen, B., Everett, A., Nugent, K., Sawa, A., Sharifi, V., & … Eaton, W. (2014). Reasons for not seeking general medical care among individuals with serious mental illness.	Background: There has been a serious increase in the amount of mortality of seriously mentally ill people, which has made people think that they are not receiving adequate general medical health-care or their general health is not good. It has been found that people who have a mental illness are less likely than the average person to receive various general medical care, as well as a delay in care.	Setting: two urban outpatient psychiatric clinics in Baltimore (serious mentally ill patients) South census region—including Maryland (comparison patients) Population: Adults with DSM-IV clinical diagnoses (schizophrenia, schizo-affective disorder, schizophreniform	Design: This study researched people with mental illnesses and compared them with the general population. They did this by interviewing and looking in the charts of the mentally ill in two urban Baltimore EDs and then took data from the NHIS South census region for the comparison patients. Level of Evidence: Level 4—non-experimental	The evidence based findings in this study show that most of the 271 seriously mentally ill patients were females (53%), disabled (62%), and had a minimum of a high school education (67%). 54% were non-Hispanic black. 34% were non-Hispanic white. 1% were Hispanic. 11% were from	Practice and research implications that would be beneficial include making services more accessible (ex. make it easier to reach services, not having to wait a long time for appointments, transportation, affordable), assess people's disabilities to target an appropriate support service, remediate cognitive difficulties, improve self-management of day-to-day activities, target case-management, and integrate mental health and general medical services.	Limitations in this study included not being able to establish a causal relationship between delays and these outcomes (due to the cross-sectional nature of the data). Another issue was that this data was based on self-report of data, which had a lack of information about the length of delays and specific care

Psychiatric Services, *65*(6), 818-821. doi:10.1176/appi.ps.201300348 Primary source Mixed methods	Purpose Statement: To assess the delays of receiving medical care of individuals with serious mental illness, compared to a general population sample, and associate these delays with sociodemographic and clinical delays, health status, and use of emergency department services. Research Question: Do people with a serious mental illness receive delayed medical care, have a critical health status, and use emergency department services, compared to the general population and what are the ethnicities associated with these delays? Independent Variable: improve access to medical services, case-management, integrating mental health/general medical	disorder, bipolar disorder (type I and II), delusional disorder, psychotic disorder, or major depressive disorder. National Health Interview Survey (NHIS) participants (comparison patients) Sampling method: The comparison patients were asked seven questions regarding why they delayed seeking medical help. They also self-rated their general health status and were asked if they were diagnosed with any comorbidity in the past 12 months. The mentally ill clinical sample was asked about why they visited the ED for any reason in the past year, if they were diagnosed with any physical health		other racial groups. 71% reported at least one of the general medical conditions assessed. 33% had a clinical diagnosis of schizophrenia spectrum disorders. 60% had mood disorder diagnoses. 56% of the NHIS participants were female, 60% had at least a high school education, 54% were non-Hispanic white, 24% were non-Hispanic black, and 5% were in other racial groups. 47% of the NHIS participants reported at least one medical condition. Overall, mentally ill patients were more likely to report delays in medical care for reasons like not getting an appointment soon enough (33% vs. 6% for NHIS), not		settings.

	services, follow-up care Dependent Variable: medical care among people with serious mental illnesses Population: mentally ill patients who receive delayed medical care	problem, and what they did for routine or preventative health care. Medical records were looked at and clinical interviews were done to see patient's mental health history. Then, they analyzed all of these findings. Sample size: 271 patients (serious mentally ill patients) 40,016 NHIS participants (comparison patients)		having transportation (27% vs. 3%), too long of a wait after arriving (25% vs. 6%), not being able to reach the service by phone (22% vs. 3%), and service not being open at a convenient time (15% vs. 3%). 53% of the mentally ill patients reported one of these reasons, while the NHIS participants only reported one of these 13% of the time. 35% mentally ill versus 5% NHIS reported more than one of these. In addition to these reasons, 28% of the mentally ill said they delayed treatment due to not having insurance/not being able to afford it and 15% thought that they would be treated		

				differently because of their illness. 70% of the mentally ill that reported delays also reported use of the emergency room. The most common reasons for emergency room use was due to unspecified pain, acute injuries, chest pain, and shortness of breath.		
5 Buus, N. (2011). Categorizing "Frequent Visitors" in the Psychiatric Emergency Room: A Semistructured Interview Study. *Archives Of Psychiatric Nursing*, *25*(2), 101-108.	Background: The psychiatric services over the years have become limited. They have decreased the number of psychiatric impatient beds, increased the number of hospital admissions, and had shorter inpatient admissions. This has made the inpatient psychiatric roles primarily crisis management of chronically and severely mentally ill patients. Frequent visitors to the psychiatric emergency services has become a	Setting: psychiatric emergency room at Danish University hospital in 2007 Population: nurses in psychiatric emergency rooms Sampling method: They used nurses who were permanently employed at the emergency room. Sample size: 11 of	Design: Semistructured interview study that used interviews with participant observation/in situ audio/video recordings of clinical practices at the emergency room. The author, who was a trained and experienced interviewer conducted each interview in a quiet office outside of the emergency room. They lasted on average, 96 minutes. A semi-structured interview guide was used to complete the	Most of the nurses described the most central function of the psychiatric emergency room to make psych assessments, providing psych first aid, and provisional counseling. All of these things were focused on acute issues. A big part of the work was to plan and coordinate what the visitor's course of treatment would be from the ED	Frequent visitors were found to not profit from pysch treatment and did not use resources in their psych network. These visitors were not always difficult to work with. They were easy to work with if they were straightforward. In order to decrease number of visits, psych health care services need to be more sufficient and have more relevant treatment options. More psych services also would help to decrease the frequency.	The limitations they had were that only the younger and more inexperienced nurses chose to participate in the study. Another limitation was that nurses' categorization of patients in the psych ED should have included comparisons with data from observations and audio or video recordings of clinical

Qualitative study Primary source	problem and there are not consistent predictors of psychiatric emergency room overuse. <u>Purpose Statement</u>: The purpose of this study is to develop more knowledge about categorizing practices among nurses working in a psychiatric emergency room. <u>Research Questions</u>: How do nurses account for their everyday work and professional measures in the psychiatric emergency room? How do nurses categorize appropriate visits to the psychiatric emergency room? To what extent do nurses categorize frequent visitors as problematic to take care of?	27 nurses participated	interviews. <u>Level of Evidence</u>: Level 4-non-experimental	and after they were released. The medical staff members were to make the psych assessments and determine which visitors needed care first. This frustrated the nurses because sometimes they were just waiting around for the answer as to who they should treat first. In the ED, the work and workload on a daily basis was highly variable. Successful visits were classified as rapid ones. Nurses often found issues with the visitors not agreeing with what they thought was necessary for their treatment (they didn't grasp the importance of their condition and thought they should get a different treatment).		categorization processes in situ.

	Independent Variable: how to categorize the patients and interview them in the psychiatric emergency room Dependent Variable: nurses Population: nurses of psychiatric emergency services			Sometimes visitors would get admitted to the ED by exaggerating their symptoms.		
6 Liu, S., Nagurney, J., Chang, Y., Parry, B., Smulowitz, P., & Atlas, S. (2013). Frequent ED users: are most visits for mental health, alcohol, and drug-related complaints?. *American Journal Of Emergency Medicine*, *31*(10), 1512-1515.	Background: There is a trend that the emergency department (ED) is becoming crowded more often, which is straining systems capabilities. This then results in focus of ED utilization when discussing policy deliberations in health care systems. To better understand ED utilization and design strategies to better manage the different ED resources, they are focusing on the subset of patients who frequently visit the ED. Purpose Statement: The	Setting: tertiary, urban, academic, level-one trauma center Population: census of 90,000 visits annually—all patients who presented to the ED for at least one visit between January 1, 2010 and December 31, 2010 Sampling method: Accessed the electronic medical record (EMR) system to obtain patient	Design: This was a retrospective cohort study that explored the association between frequent ED use and ED visit diagnosis at a single hospital. Level of Evidence: Level 5—cohort/quasi-experimental study	The evidence-based findings showed that 3.8% of patients were frequent users. These patients accounted for 14.6% of visits in 2010. 3.0% of frequent users were repeat users, which was 8.7% of total visits. 0.7% of patients were highly frequent users, accounting for 3.9% of visits. 0.1% of patients were super frequent users with 2.0% of the visits. The frequent users were more likely	In order to make interventions to decrease the amount of emergency department use, this study shows that successful interventions are probably geared towards managing patients with frequent alcohol-related visits.	The limitations in this study that were identified are that this study was done at one facility (which may not be able to be generalized then), the data for chronic illnesses was not analyzed, the data cannot fully account for visits related to substance abuse or mental illness, no sensitivity analysis to try to evaluate secondary diagnoses was made, ICD-(discharge diagnosis code

doi:10.1016/j.ajem.2013.08.006 Primary source Mixed methods	objective of this study is to determine whether frequent emergency department users are more likely to make at least one and a majority of visits for mental health, alcohol, or drug-related complaints compared to non-frequent users. Research Question: Are frequent ED users more likely to make at least one/a majority of visits for mental health, alcohol, or drug-related complaints, compared to non-frequent users, over a 12 month period at an urban, academic, level one trauma center? Independent Variable: mental health/alcohol/drug-related complaints Dependent Variable: frequent ED users Population: frequent ED users	demographics, primary discharge visit code, and ED disposition. They examined the primary and secondary visit diagnosis. They counted the number of visits each patient had in the previous 12 months. If the patient had multiple visits, the highest number of visits was used to determine ED usage status. Non-frequent users were defined by having at least 1 visit, but less than 4 in the previous 12 months (this was the comparer group). Repeat users were categorized by having 4 to 7 visits, highly frequent had 8 to 18 visits, and super frequent had 19 or more visits. The top 3 ICD-9 diagnoses for frequent and non-frequent users.		to be older, white men and were more likely to have a primary care physician. Under all categories of frequent users, the majority of visits were due to alcohol related reasons. The only category that made the majority of their visits for mental health issues were repeat users. No frequent user had any drug-related complaints. For the secondary diagnoses, repeat and highly frequent users had an increased odds of having a mental health related diagnosis for most of their visit at the hospital. Super frequent user's most frequent diagnosis was non-dependent drug abuse. Overall, the top three categories		data may not capture the reason for a visit accurately, no examination about whether or not the frequent users visited other EDs within the time frame, and this study was only over one calendar year.

		Sample size: 90,000 patients		for visits were similar between frequent and non-frequent users (most frequent users go for a med/surgical problem which was also similar to non-frequent users)		
7 Hakenewerth, A. M., Tintinalli, J. E., Waller, A. E., Ising, A., & DeSelm, T. (2013). Emergency department visits by patients with mental health disorders – north Carolina, 2008-2010. *MMWR: Morbidity & Mortality Weekly Report, 62*(23), 469-	Background: Patients with mental health disorders (MHDs) use the ED for acute psychiatric emergencies, for injuries and illnesses complicated by or related to their MHD or when psychiatric or primary-care options are not available. Purpose Statement: The purpose of this study is to measure the incidence of ED visits in North Carolina with MHD diagnostic codes (MHD-DCs) to determine trends so that strategies are able to be implemented to prevent hospitalization, improve access to ambulatory	Setting: North Carolina EDs Population: patients presenting to the ED with a MHD Sampling method: The Carolina Center for Health Informatics analyzed the ED visits that occurred between 2008 and 2010. These visits were captured by the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT). Codes were developed for	Design: The data for ED visits was extracted from NC DETECT, which is a population-based, statewide public health surveillance system that contains ED data for 99% of North Carolina ED visits. Level of Evidence: Level 4-nonexperimental designs	Overall, 8.8% of ED visits were assigned at least one MHD-DC out of 11 possible codes. The rate of MHD-DC-related ED visits increased by 14.4%, but the rate of all ED visits increased by 2.1%. MHD-DC related visits were 2.3 times greater than all other ED visits. People that were greater or equal to 65 years old that had a MHD-DC had the highest hospital admission rate than all other groups. 28.89% of the	The implications that should be made should decrease the growing burden on the healthcare system. Standardized surveillance should be implemented so that we can identify the trends in who uses the ED and how the interventions of the ED impact the visitors.	The limitations of this study were that the ED visit data was secondary data from hospital administrative and clinical data sources/diagnostic codes are generalized by hospital coders from the patients records, the percentage of people that had a MHD-DC is most likely an underestimate, some ED visits would not have been avoided with better outpatient access, and diagnostic coding

472. Secondary source Mixed methods	care, and develop new ways to provide ED care for the elderly with MHDs. <u>Research Question</u>: Why do people with MHD present themselves to the ED frequently? What are the issues they come in with? What are ways we can avoid them from having to be hospitalized, improve access to ambulatory care, and develop new ways to care for elderly MHD patients? These are all studied over a two-year time frame. <u>Independent Variable</u>: MHD <u>Dependent Variable</u>: patients visiting the ED	the different MHD. Annual rates were calculated per 10,000 population <u>Sample size</u>: 12,978,615 total ED visits		MHD were stress/anxiety/depression. 42.99% of the MHD were schizophrenia/delusional/psychosis. 37.32% of the MHD were bipolar. 40.01% of the MHD were suicidal/homicidal ideation. 60.54% were dementia. 48.38% were personality/conduct disorders. 24.49% were miscellaneous. 13.35% had a psychiatric examination. 23.81% had a mental disorder due to brain damage. 15.87% had developmental disorders that originated in childhood. 32.36% had eating disorders.		is affected for all types of medical conditions by coder training/experience, clinician documentation, and billing practices.
8 Downey, L. A., Zun, L. S., & Burke, T. M.	<u>Background</u>: Patients who have psychiatric complaints tend to frequently visit the emergency department.	<u>Setting</u>: a level one ED <u>Population</u>:	<u>Design</u>: This was a retrospective chart review of a random sample. They evaluated 102 walk-	54% had Medicaid and 26% was self-pay. 38% of all patients came in with affective	More definitive studies in the future should be implemented, with a larger population base. A prospective study studying psychiatric patients would be	The limitations of this study included that the research was only performed by one

(2010). Differences in How Psychiatric Patients Come Into the Emergency Department. *Primary Psychiatry, 17*(8), 53-61. Mixed methods Primary source	These people commonly have agitation and violent behavior. They are brought into the ED in many different ways. Purpose Statement: The purpose of the study is to determine any difference in the type of patients presenting to the ED with psychiatric complaints who are brought by police, fire department, family, walk-in, or other. Research Question: Do psychiatric patients who come into the ED frequently, have a relationship between how they are brought in and what their issue is over a 1 year period at a level-one ED? Independent Variable: the method of how the patients came into the ED Dependent Variable: the psychiatric patients	psychiatric patients that come into the ED Sampling method: They included anyone that had a psychiatric diagnosis that was presented in the ED. The psychiatric diagnoses had to be first or second provisional diagnoses. Selecting every fourth person that came in with a psychiatric diagnosis randomized them. Sample size: 300 patients	ins, 66 from EMS, 82 from police, 36 from family, and 14 by private ambulance. They collected basic demographic data and any treatment information the patient received was documented. Hospital charges were collected. Injuries to staff, self, and family were recorded. They analyzed the information using the Statistical Package for Social Sciences to determine relationships between treatment, restraints, patient presentation, treatments during transportation, and injuries to people during the situation. Level of Evidence: Level 4—retrospective chart review	psychosis and were brought in by themselves (44%), the police (26%), fire department (15%), or family (14%). Schizophrenic disorders were brought in by police (50%), themselves (31%), or family (9%). 181 were male; 119 were female. 222 had insurance; 78 did not. 117 had a regular doctor; 37 did not have a regular doctor; 146 were unknown. 89 had a regular psychiatrist; 68 did not; 142 were unknown. 87 had no order for a drug screen; 96 had a negative drug screen; 112 tested positive; 5 were ordered but weren't complete. Overall, there was a difference in the type of patient and how they were	beneficial to understand the use of EMS use and why it is chosen. This could help to organize what to learn in EMS planning and training. Determining the common qualities of patients the use certain means of transportation may help the ED develop a better treatment plan and protocol.	institution, the study was retrospective (making it difficult to assess some of the details that would help find out why people came into the ED and why they came in how they did), and it is uncertain why the assessment to determine the number of injuries secondary to transporting patients was difficult.

				brought into the ED.		
9 Ku, B., Scott, K., Kertesz, S., & Pitts, S. (2010). Factors associated with use of urban emergency departments by the U.S. homeless population. *Public Health Reports, 125*(3), 398-405. Mixed Methods Primary source	Background: There has been an increase in the number of homeless people from 2007 to 2008. Homeless people tend to be uninsured and have significant barriers when it comes to accessing healthcare. This results in many homeless people going to the emergency department, contributing to the problem of overcrowding. Purpose Statement: The purpose of this study is to see if homelessness is the reason these people frequently visit the ED or if it is related to common issue in the homeless population. Research Question: Do homeless people, who are over the age of 18, frequently visit the ED (more than non-homeless people) due to the fact that they are	Setting: urban EDs in the U.S. Population: homeless visits the ED Sampling method: Used 2005 and 2006 National Hospital Ambulatory Care Surveys (NHAMCS-ED) which were 4-stage probability samples of national ED visits. Sample size: 550,000 homeless visits and 99,125,000 non-homeless visits	Design: They performed a descriptive, cross-sectional secondary analysis of the ED components of the 2005 and 2006 NHAMCS-ED. They had a 4-stage probability sample of ED visits that are conducted annually by the National Center for Health Statistics (NCHS) within the Centers for Disease Control and Prevention (CDC). Level of Evidence: Level 4—non-experimental, descriptive-cross sectional study	0.5% of all ED visits were made by homeless people during the 2-year period. These homeless people made 550,000 ED visits or 72 visits per 100 homeless individuals per year (2005-2006). The overall population115.3 million visits annually (40 visits per 100 people) or 99,125,000 total visits. Homeless people were much more likely to have visited the same ED more than once within a three day period (13.0% homeless vs. 3.9% non-homeless). The most frequent reason for homeless and non-homeless people to come into the ED was due to	Comprehensive planning for discharge is very important in the homeless population because of their comorbid psychiatric and substance abuse issues and lack of consistent/safe shelter. When there is a lot of comprehensive planning in the ED, there has been a decrease in the amount of homeless people to return to the ED. Medically supervised recovery environments (medical respite programs) tend to reduce hospital readmissions. Another thing that helps is “Housing First” approaches. Overall, these things decrease the cost and improve the health outcomes.	The estimate of homeless ED visits is most likely an undercount because people may not volunteer their housing situation or ED staff may not ask about it. Homeless people in the ED may not be easily identified because they may list a shelter, family/friend’s address, or make up an address when asked about housing. Finally, the data was limited to just 2 years.

	homeless or is there another underlying factor that contributes to the visit over a two year period? Independent Variable: frequent visits to the ED Dependent Variable: homeless status			injury (304,000 homeless vs. 35,413,000 non-homeless). Then followed alcohol/drug reasons (100,000 homeless vs. 1,117,000 non-homeless). After that was psychiatric reasons (57,000 homeless vs. 2,359,000 non-homeless). This is why it's difficult to treat the homeless population because there is a high prevalence and co-occurrence of psychiatric illness with substance abuse in the homeless population.		
10 Brennan, J. J., Chan, T. C., Hsia, R. Y., Wilson, M. P., & Castillo, E. M. (2014). Emergency	Background: In 2010, it was estimated that ED visits nationwide were at about 129.8 million, which leads to the overcrowding of EDs. Frequent ED tends to be due to psychiatric issues.	Setting: San Diego regional hospitals Population: psychiatric patients that frequently visit the ED (18 and older)	Design: This was a multicenter retrospective longitudinal cohort study of hospital ED visits from all 18 nonmilitary acute care hospitals serving the metropolitan area of	9.1% of the patients were classified as frequent users, which meant that they visited the ED at least 4 times within a 12-month period. These	A case management approach and a referral system has been effective to reduce the number of ED visits while also improving social and clinical outcomes. Users with resources and agencies to better manage their care is important in order to have a better outcome and decrease the number	The limitations on this study include that the data was limited to OSHPA, characteristics like urgency/access to primary care/costs were not

Department Utilization Among Frequent Users With Psychiatric Visits. *Academic Emergency Medicine*, *21*(9), 1015-1022. doi:10.1111/acem.12453 Mixed methods Primary source	Purpose Statement: The purpose of this study was to assess the incidence of psychiatric visits among frequent ED users and utilization among frequent psychiatric users with and without multiple psychiatric visits. Research Question: Do frequent users of the ED have a primary psychiatric issue, what is their psychiatric disorder, and do they have a comorbid disease that is associated with frequent use over a 3 year time period? Independent Variable: psychiatric disorder, comorbid disease, primary psychiatric issue Dependent Variable: frequent ED users	Sampling method: Samples were taken over a 3 year period from San Diego regional hospitals ED, studying frequent users of the ED. Sample size: 788,005 patients with 1,764,559 ED visits	San Diego between 2008 and 2010, using the data submitted to the California Office of Statewide Health Planning and Development (OSHPD). Level of Evidence: Level 5—cohort	people accounted for 646,544 of the ED visits. 5.1% of the patients had at least one primary psychiatric visit and were 5 times as more likely to be classified as frequent users compared to people without a primary psychiatric visit.80.1% of the frequent users had no primary psychiatric visit during the study period. 16.6% had just one to three primary psychiatric visits. 3.3% had four or more primary psychiatric visits within 12 months. 68% of frequent psychiatric users had a comorbidity index score of one or more and were diagnosed with one or more of these during the study time period. 49% had chronic	of times they need emergency care. Additional research will be needed to further study what the underlying causes are for the pattern of frequent visitors to the ED are to try and decrease this from happening.	available, the study limited ED use to the San Diego region and did not include county military EDs, 6% of the adults were not used due to invalid patient identifiers, and the definition of frequent ED use varies from study to study. Overall, this could lead to ED utilization to be underestimated.

				pulmonary disease, 22% had diabetes with or without chronic complications, and 19% had mild lover disease. 55.6% had schizophrenic disorders, 53.9% had episodic mood disorders, and 48.2% had neurotic disorders. 51.0% were diagnosed with 2/3 of these disorders.		
11 Lunsky, Y., Lin, E., Balogh, R., Klein-Geltink, J., Wilton, A., & Kurdyak, P. (2012). Emergency department visits and use of outpatient physician services by adults with developmental disability	Background: People with a developmental disability and a severe mental illness most frequently visit the ED. A lack of primary care is a predictor of ED visits in people with a DD and a SMI. Purpose Statement: To compare the ED, primary, and psychiatric care visit rates associated with the presence and absence of a DD and a mental	Setting: Emergency department, primary and psychiatric facilities in Ontario from April 2009-March 2009 Population: Adults with DD and psychiatric disorder Sampling method: people were categorized into 1 of 6 mutually exclusive groups in a	Design: Population-based study Level of Evidence: Level 4- Non experimental	26% of adults with a DD were classified as having a serious mental illness. 8% had a psychiatric diagnosis but no DD. Patients with DDs and SMIs had the highest rates of visits.	People with severe impairments had the greatest likelihood of ED visits, despite access to outpatient services, suggesting that outpatient care (primary and psychiatric), as currently delivered, may not be adequate to meet their complex needs. Frequent ED visits cannot be attributed to poo access to primary or psychiatric care.	Only used administrative data which did not address quality of care, inaccurate postal codes, inaccurate diagnoses, use of area-level socioeconomic information, DD diagnosis was obtained through administrative data as opposed to a clinical diagnosis or DD registry, categorization of

and psychiatric disorder. *Canadian Journal Of Psychiatry. Revue Canadienne De Psychiatrie*, *57*(10), 601-607. Primary source Mixed methods	illness. Research question: Are ED, primary, and psychiatric care visit rates associated with the presence and absence of a DD and a mental illness? I: DD and psychiatric disorder D: ED, primary and psychiatric care visit rates	hierarchical fashion Sample size: 43,549 adults with DD				health services was general, does not examine clinical significance, cannot see how the services interact with ED care at the individual level
12 SHAFIEI, T. T., GAYNOR, N. N., & FARRELL, G. G. (2011). The characteristics, management and	Background: The frequency of ED visits has been increasing due to the integration of psychiatric and general health services. Substance abuse is one of the most common causes of ED visits and they tend to be violent and aggressive causing a burden on ED staff.	Setting: Northern suburbs of Melbourne metropolitan hospital Population: Adult patients ages 18-65 who attended the ED in the northern suburbs of Melbourne with an	Design: Retrospective observational study Level of Evidence: level 4- non experimental	290 out of 5522 patients were discharged with a mental and behavioral disturbance, 768 were unknown. 58 clients were reviewed, 41 of them had a MH discharge diagnosis and were triaged with	MH patients were more likely to be triaged as category 1 (resuscitation), stay longer than 8 hours, be admitted to another hospital or other campus of the study hospital, they were slightly less likely to leave the ED before treatment completed	Only over 2 months, Some patients may not have been identified if they were coded with a non-MH diagnosis, there was an absence of some information in the database, not possible to

outcomes of people identified with mental health issues in an emergency department, Melbourne, Australia. *Journal Of Psychiatric & Mental Health Nursing*, *18*(1), 9-16. doi:10.1111/j.1365-2850.2010.01632.x Primary source Mixed methods	Purpose Statement: To investigate the characteristics of, and outcomes in relation to, people presenting with a mental health problem to one large metropolitan ED. Research question: What are the characteristics of and outcomes in relation to people presenting with a mental health problem to one large metropolitan ED? I: characteristics of people with MH issue D: outcomes of people with a MH problem	ED discharge diagnosis of a MH disorder, including substance abuse and psychosocial crisis over two months Sampling method: electronic records system search, data was collected on patient demographics, time of presentation, mode of arrival, length of stay, and treatment in the ED, descriptive statistics Sample size: 5522 patients		psychiatric problems but left the ED w/out seeing a clinician.		review all details for all the patients, unknown diagnoses
13 Minassian, A., Vilke, G. M., & Wilson, M. P. (2013). Frequent	Background: overcrowding is a significant public health problem , it puts a burden on limited ED resources	Setting: a university ED Population: All visits in a particular calendar year with 4	Design: retrospective review of electronic medical records Level of Evidence:	Patients with both a psychiatric history and alcohol abuse history had, on average, the	Frequent visitors with psychiatric complaints visit more frequently than patients with HBV or alcohol abuse, psychiatric history comorbid with alcohol abuse and HCV with alcohol abuse were prevalent in frequent visitors,	Restriction to one calendar year, a "patient-based" timeline, definition of frequent use (whether visits are

Emergency Department Visits are More Prevalent in Psychiatric, Alcohol Abuse, and Dual Diagnosis Conditions than in Chronic Viral Illnesses Such as Hepatitis and Human Immunodeficiency Virus.*Journal Of Emergency Medicine*, *45* (4), 520-525. doi:10.1016/j.jemermed.2013.05.007 Primary source Mixed methods	Purpose Statement: to assess whether chronic conditions such as hepatitis C and HIV are more prevalent in frequent ED users compared to HBV, psychiatric complaints and alcohol abuse were also compared Research question: Are HCV, HIV, and HBV more prevalent than psychiatric complaints and alcohol abuse in frequent visitors of the ED	or more visits, all visits from January 1, 2008 to December 31, 2008 to two EDs were examined Sampling method: number of visits for each individual patient was generated by using a patient's medical record number as his or her unique identifier Sample size: 39,249 unique patients	Level 4- nonexperimental	highest number of visits per year, "dual diagnosis" patients are especially frequent users of the ED with an average of 6 visits per patient as opposed to about 2 per patient with a psychiatric or alcohol use alone	traditional interventions have shown limited success, implementation of alternative psychiatric resources (psychiatric urgent care centers or community housing options), individualized treatment plans and case management programs have sown some success	clustered over a short period of time or spaced out more evenly throughout the year and how often visitors are hospitalized), lack of direct comparison to other chronic medical conditions that may also result in frequent ED use, illnesses, complaints, and conditions may have been underreported

14 Bodenmann, P., Velonaki, V., Ruggeri, O., Hugli, O., Burnand, B., Wasserfallen, J., & ... Daeppen, J. (2014). Case management for frequent users of the emergency department: study protocol of a randomized controlled trial. *BMC Health Services Research, 14* (1), 426-449. doi:10.1186/1472-6963-14-264 Primary source Mixed methods	Background: FUs have a higher risk for drug and alcohol abuse, having mental health issues, have exacerbations of chronic conditions, homelessness, uninsured, and are form low socio-economic levels. They burden hospitals with multiple visits causing extended waiting times and overcrowding. Purpose Statement: To demonstrate that an intervention on ED-FUs by a multidisciplinary mobile team (based on CM care patterns) is a more appropriate way of reducing the ED- through a better orientation in the health-care system – and of improving quality of life than is standard emergency care delivered by nurses and physicians and that it will reduce the associated costs.	Setting: emergency department of the University Hospital of Lausanne, Switzerland Population: people at least 18 years of age who have 5 or more visits to an ED in the previous 12 months Sampling method: 24 hour, seven-days-a-week detection system that identifies all patients who have attended the ED 5 times or more during the previous 5 months. They receive written information, an oral explanation and time to consider participation or not. Sample size: 250 patients; n=125 in intervention group & n = 125 in the control group	Design: randomized controlled trail Level of Evidence: Level 2- experimental	Number of ED visits, cost analysis, feelings of discrimination	It was found that risk of ED use was increased with social and specific medical vulnerability factors. Hyper frequent users (>13 visits in 12 months) had three or more risk factors. FUs were often younger. Interventions that may reduce ED visits improved social and medical outcomes. CM does lead to reduced ED use by FUs.	Patterns of care need to be tested in local and national settings, there are knowledge gaps in the literature

	Research question: Does case management for frequent users of the emergency department reduce emergency department use? I: case management D: ED use					
15 Kumar, G., & Klein, R. (2013). Effectiveness of case management strategies in reducing emergency department visits in frequent user patient populations: a systematic review. *The Journal Of Emergency Medicine*, *44* (3), 717-729. doi:10.1016/j.jemermed.	Background: visits to the ED have increased from 1997 to 2007, they often visit frequently and inappropriately which causes a strain on quality of care for other patients and reduces efficiency of the health care systems Purpose Statement: To examine the evidence of the effectiveness of the CM model in the frequent ED user patient population Research question: How effective is the CM model in the frequent	Setting: search performed in May 2010 Population: age >18 years Sampling method: systematic review for primary relevant articles using the search themes frequent use, emergency department and case management Sample size: n= 960 participants	Design: systematic review of the literature designed to capture relevant primary studies Level of Evidence: level 1- systematic review	12 studies were used including pre- and post-intervention and randomized controlled trails. Mental health and substance abuse were most frequently occurring, there was varied degrees of outcomes and effectiveness from CM intervention	A reduction of ED visits occurred in different populations, improved ED outcomes was correlated between all the studies	In the control group some patients did not follow-up with the CM intervention, each search phrase include from 1990 to April 2011, human subjects, age over 18 years, and English language; heterogeneity makes direct comparisons difficult, over-reliance on both retrospective design and pre- and post-intervention analyses, studies vary in detail which makes it

2012.08.035 Secondary source Qualitative method	user patient population?					hard to assess the intensity of the intervention, some studies were limited by their sample size, some relied on patient referral from the ED which could mean bias, most studies focused on a single health care system
16 NOSSEL, I., CALMES, C., BROWN, C., KREYENBUHL, J., GOLDBERG, R., LIJUAN FANG [b3 b4], (., & DIXON, L. (0001). Patterns of Emergency Department Use for Medical Conditions Among Persons	Background: mental illness and medical conditions are presenting more common in the ED Purpose Statement: To examine the predictors of medical emergency department use among veterans with serious mental illness Research question: What are the predictors of medical emergency department use among veterans with serious mental illness?	Setting: patients were recruited from the Veterans Affairs Capital Health Care Integrated Service Network between February 2003- April 2005 Population: ages 18-70 years, living within 50 miles of the facility, and had a chart diagnosis of schizophrenia spectrum or psychotic mood disorder Sampling method: patients were	Design: many different surveys, interviews, scales, logistic and linear regression were used, brief-critical time intervention was used Level of Evidence: level 2- experimental	Medical ED use was used commonly in this population, there is an association between increased use of outpatient medical care and the ED, people with psychiatric symptoms commonly use the ED so mental and medical health both need to be addressed	ED use was common in this population, mental health and medical health needs need to be combined to reduce the amount of ED visits that occur	Small sample and restriction to veterans with a recent psychiatric hospitalization, male, and with access to care within the VA

With Serious Mental Illness (English). *Psychiatric Services (Washington, D.C.)*, *61*(12), 1251-1254. Primary source Mixed methods	I: brief-critical time intervention D: continuity of psychiatric outpatient care after hospitalization	recruited from inpatient psychiatric units within the Veterans Affairs Capital Health Care Integrated Service Network between February 2003 and April 2005 Sample size: 118 patients				
17 Little, D. R., Clasen, M., Hendricks, J. L., & Walker, I. (2011). Impact of closure of mental health center: emergency department utilization	Background: crowding of the ED increases workload on staff, this causes fatigue and anger in the workplace. It also reduces the quality of care to all patients. Purpose Statement: to demonstrate the impact of closure of a local mental health center on patients who suffer from	Setting: an urban community teaching hospital Population: people who visited between January 2008-August 2008 Sampling method: mixed	Design: electronic health record data and medical chart review Level of Evidence: level 4-nonexperimental	The average length of ED stay was 439 minutes compared to 247 minutes, July had the longest length of stay for people with mental health diagnoses	Length of stay in mental patients vs general medical patients was longer	Eight months of data was analyzed, large sample, only one center was examined

and length of stay among patients with severe mental illness. *Journal Of Health Care For The Poor & Underserved*, *22*(2), 469-472. doi:10.1353/hpu.2011.0057 Primary source Mixed methods	severe mental illness. Research question: Does the closure of a local mental health center effect patients who suffer from severe mental illness? I: closure of a local mental health center D: length of stay in the ED	Sample size: N/A				
18 Doupe, M., Palatnick, W., Day, S., Chateau, D., Soodeen, R., Burchill, C., & Derksen, S. (2012). Frequent	Background: frequent Ed users have more chronic diseases and have more mental health issues such as depression and substance abuse Purpose Statement: to identify factors that	Setting: Manitoba Centre for Health Policy, Faculty of Medicine, University of Manitoba Population: Manitobans with at least 1 ED visit in the Winnipeg Health	Design: administrate health care record review and analyses Level of Evidence: level 4-nonexperimental	Proportion of comorbid mental health patients increased from 1 to 6 visits, stabilized at 7 and 8 visits then increased, the highly frequent users had more mental health	anxiety, depression and substance abuse were the 3 highest reasons in people with a mental health disorder to visit the ED, substance abuse is common in frequent and highly frequent users	The definition of "frequent ED use" ranges from 2 visits to 12 with 4 visits being used most often, most frequent studies have been conducted at a single or few ED sites, self-report

users of emergency departments: developing standard definitions and defining prominent risk factors. *Ann als Of Emergency Medicine*, *60* (1), 24-32. Primary source Mixed methods	define frequent and highly frequent ED users Research question: What factors define frequent and highly frequent ED users? I: risk factors D: ED visits	Region who were 17 years or older at the start of the study period Sampling method: health records that captured the dates and types of health care use made by Monitoba residents, person-specific but anonymous identification numbers Sample size: 105,687 patients with 200,810 ED visits		issues, this is a small portion but a high proportion of ED visits, more frequent users had mental health issues, 57% highly frequent users lived in a core or lowest income area and 67.3% had a diagnosis of substance abuse, few highly frequent users had physical diseases, 70% of frequent and highly frequent users with a mental health issue had depression, highly frequent users with a mental health issue also had anxiety, 72% of frequent users and 90% of highly frequent users with dementia also had substance abuse, highly frequent users were defined most strongly based on their previous ED use		techniques are often used which are prone to nonresponse and patient recall bias, no studies rank risk factors in order of important which limits the ability to develop effective treatment options; restricted analysis to adult users only, results cannot be generalized to rural EDs, diagnostic coeds are not provided for ED visits so can identify patients with a reason based on previous visits and hospitalizations which may not be the cause of their ED visit, sociodemographic measures are captured poorly in administrative records and administrative records were created for billing

				patterns, schizophrenia, and substance abuse		and not research so inaccuracies may exist.
19 LaCalle, E., & Rabin, E. (2010). Frequent users of emergency departments: the myths, the data, and the policy implications. *Annals Of Emergency Medicine*, *56* (1), 42-48. doi:10.1016/j.annemergmed.2010.01.032 Secondary source Mixed methods	Background: EDs experienced an increase in patient volume from 1996 to 2006, they are clogging Purpose Statement: To summarize what is known about frequent users' demographics, degree and types of illness, access to other medical care, and utilization patterns. Research question: What are the demographics, degree and types of illnesses, access to other medical care, and utilization patterns of frequent users of the ED.	Setting: EDs in the United States Population: adult and pediatric patients presenting frequently to EDs Sampling method: prospective and retrospective studies published in peer-reviewed journals from 1990 to the present were considered Sample size: 25 search results meeting the criteria	Design: review of the literature Level of Evidence: level 1- systematic review	Mental health problems are associated with frequent use, alcohol-related visits and psychiatric morbidity are significant predictors of frequent visits in large urban cities such as Boston and San Francisco but not in other less urban sites, most non-US studies associate frequent ED us with psychiatric comorbidity, lower-acuity visits, and younger age	Complaints seem to be site specific with substance abuse and mental health comorbidity demonstrating in urban areas	Site-specific data have produced a large degree of heterogeneity and pursuant difficulties in generalizability and national data sets are deficient in key demographic variables and objective process, outcome, and cost data
20 Larkin, G., Beautrais,	Background: Mental disorders are becoming more prevalent in EDs, they are the fastest	Setting: N/A	Design: research agenda and recommendations	From 1992 to 2001, 53 million visits to U.S. EDs were made	Advocating for mental health research, screening, and intervention funding, need feasible, cost-effective solutions,	N/A

A., Spirito, A., Kirrane, B., Lippmann, M., & Milzman, D. (2009). Mental health and emergency medicine: a research agenda... 10th annual Academic Emergency Medicine (AEM) consensus conference, "Public Health in the Emergency Department: Surveillance, Screening, and Intervention, " May 13, 2009, New Orleans, Louisiana. *Academic Emergency Medicine*, *16* (11), 1110-	growing component of the emergency medical practice, there are many reasons why people present to the ED but the largest increase in the past decades has come from mental health visits from people who are insure Purpose Statement: This article addresses this need by reviewing trends in the psychoepidemiology of U.S. ED visits, advocating for increased resources for EM-based mental health research and training, and developing recommendations for an improved behavioral science /EM research agenda that promotes screening, surveillance, best practice guidelines, and ED-initiated interventions for the acute management of	Population: N/A Sampling method: N/A Sample size: N/A	Level of Evidence: level 4- nonexperimental	primarily for mental-health reasons, the top 3 substance related disorders (30%), mood disorders (23%), and anxiety disorders (21%), patients with a dual diagnosis have higher levels of severity of mental and social problems making them more difficult to treat and be frequent users of the ED, there are about 4,000 general EDs and only 146 psychiatric EDs	need EM, mental health, and injury prevention	

1119. doi:10.1111/j.1553-2712.2009.00545.x Secondary source Qualitative method	mental health problems. Research question:					
21 Weiss, A., Schechter, M., & Chang, G. (2013). Case Management for frequent emergency department users. *Psychiatric Services (Washington, D.C.), 64*(7), 715-716. doi:10.1176/appi.ps.201200496	Background: Repeated use of the emergency department represents the need for clinical care, is expensive, and adds to the issue of ED overcrowding. Purpose Statement: Determine whether the population of frequent users utilizes case management when given the opportunity to. Research question: Do adults with mental illness use case management to decrease ED visits? Independent variable: case management	Setting: N/A Population: adults with primary mental health or substance abuse diagnoses who visited the ED 4 or more times in the past year or 2 or more times in the last 30 days Sampling method: convenience sample Sample size: 297 people	Design: N/A Level of Evidence: N/A	26% of the 297 people engaged with the case management service provided to them. The people less likely to engage were those who had multiple, severe psychiatric disorders.	People with mental health and substance abuse disorders frequently visit the ED and are in need of case management services in the ED. Although this population has a great need for this service, they tend to not utilize it as much as they should, especially when their disorders are more severe.	The limitation in this is study is that it is unknown whether or not the 26% of people that used the case management services, actually decreased the amount of ED visits.

	Dependent variable: the people that use case management					