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Frequent Emergency Department Use: A Social Emergency Medicine Perspective

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Key Points

- Frequent ED users are a heterogeneous population often experiencing unmet health and social needs.
- Rather than view ED visits in a negative light, health care systems can also consider the acute care system as a potential point of intervention – failing to address patients' underlying health and social needs may represent a missed opportunity to affect change.
- Coordination of care within and outside the health care system is crucial for frequent ED users.
- While case management and permanent supportive housing interventions have been found to be effective at reducing ED use, additional promising approaches leveraging information exchange technology and multi-disciplinary teams are currently being tested.

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Foundations

Background

Frequent emergency department (ED) use is a critical area of interest for policy makers, payers, and clinicians. The topic has been covered widely in the lay press as problematic and is seen by many as representative of a broken health care system, a contributor to high health care costs, and evidence of gaps in the community and societal care. With few exceptions, frequent ED use is the result of underlying individual and population-level health and social needs that remain unmet. These needs are heterogeneous and can include distinct challenges for patients such as an inability to fill prescriptions, poor housing conditions causing exacerbation of underlying chronic disease, pain or malnutrition related to terminal illness, and untreated substance use disorder or mental illness.

Frequent ED use is variably defined. One review found 16 different definitions of frequent use among 31 studies [1]. Most studies defined a frequent ED user as an individual with at least 3–5 ED visits in a year. ED "super users" or "ultra-high" users have been defined as individuals with levels of annual use ranging from 15 to over 20 visits in a year [2]. And, recent research and policy has focused on a small subset of individuals with extreme levels of annual ED use that can extend for over a decade [3]. Regardless of the definition, frequent ED users account for a disproportionate number of ED visits overall [2].

Frequent ED user definitions are complicated by a few factors. First, many frequent ED users access care at more than one ED. Depending on the data source used to tally ED visits, all visits may not be accounted for, which can prevent providers and researchers from counting the full spectrum of visits by an individual patient [3]. Secondly, while the term "frequent ED user" focuses on ED use, most frequent ED users also access outpatient and inpatient hospital care, as well as other systems including substance use and mental health care, housing, and jails [2, 4]. Examining ED use in isolation does not address this larger picture. Moreover, while prior work has largely focused on ED reduction interventions for frequent ED users, it has rarely focused on understanding and addressing the underlying social and medical needs of these patients.

Evidence Basis

There is a large body of research characterizing frequent ED users, in part because their disproportionate use of care is of interest to policy makers and providers. While frequent ED users represent 4–8% of ED patients, they account for 21–28% of all ED visits [5], and can generate significant costs associated with the use of EDs, inpatient hospitalizations, and other types of acute care services. While researchers need to create categories and cut-offs to define frequent ED use for the purpose of data analyses [6], from a clinical standpoint most frequent ED use is a marker of the complexity of illness and/or unmet health and social needs [7] that can vary greatly from patient to patient. Compared to non-frequent ED users, individuals who use EDs frequently have been shown to have higher rates of underlying chronic medical conditions, mental health diagnoses, and substance use disorders [2, 8]. While there are some health and social characteristics that occur more commonly in frequent ED users compared to non-frequent users, the population is heterogeneous [9]. Whether an individual is a frequent ED user is associated with factors such as insurance type [10], access to outpatient care [11], and underlying medical conditions. For example, many studies have found that patients with public insurance have higher rates of frequent ED use than individuals who are privately insured [7]. Limited research has begun to focus on identifying social needs among frequent ED users and has found high rates of homelessness, a key social need that to date has not been well captured in administrative data but is often used for research [12, 13].

Increasingly, researchers recognize that frequent ED users often visit more than one ED [10]. While there has been only a limited amount of research in this area, technology platforms that allow data sharing across multiple EDs indicate that many frequent ED users travel to multiple sites and in some cases, geographic regions [3, 14]. Not all frequent ED users in 1 year will remain frequent ED users the next. Many studies of frequent ED users discuss the phenomenon of regression to the mean [3, 9], or the tendency in observational research for outliers to move to the center of the distribution over time. This is very important, and can also be difficult to measure accurately if data are limited to a single hospital or health system.

Because health care resources are limited, predicting who will become and remain a frequent ED user can help with developing and targeting interventions appropriately. Of all factors that have been examined to date, prior frequent use is the strongest predictor of future frequent use [2, 3]. However, there are differences among individuals with frequent ED use for a short period of time compared to those who are persistent frequent ED users for five to 10 consecutive years. For example, persistent frequent ED users are more likely to have a mental health diagnosis, make higher numbers of ED visits, visit more EDs, and be publicly insured [3]. Patterns of frequent ED use can also help to predict mortality: those with frequent ED use in the past year are more likely to die in both the short and long terms [15].

Given the heterogeneity and complexity of frequent ED users, there is no “off-the-shelf” intervention to improve or coordinate their care. Two recent comprehensive reviews of the literature on ED visit reduction programs [16, 17], which included programs with published data on interventions for frequent ED users, found that only case management interventions were effective at reducing ED use. This conclusion was based on a limited number of small studies, and most of the published literature on this topic has critical limitations. One recent study showed that short-term case management reduced ED visits and hospital admissions, and increased use of primary care among publicly insured frequent ED users, although individuals whose primary issues were substance use disorder and severe mental illness were excluded from the trial, and the investigators had access to data from only two EDs [18]. Multiple studies have examined the impact of permanent supportive housing (PSH) on health services use, yet few of these studies have focused specifically on frequent ED users. While some quasi-experimental studies have found that provision of PSH reduces the use of acute health services [19], other higher quality studies have not demonstrated net cost savings for PSH. Many individuals experiencing homelessness who are frequent ED users have serious underlying medical and behavioral health conditions and experience high mortality rates compared to similarly aged individuals who are not homeless. As a result, reductions in health services use and associated cost savings may not be a realistic outcome of PSH provision, and a focus on ED visit reductions as a primary outcome could undermine the opportunity to provide this much-needed intervention [20]. ED visit reduction may be a difficult outcome to achieve, especially in the short term, for frequent ED users, and additional outcomes including connection to primary care, sustained substance use and mental health treatment, service use outside of the health care system, and other measures of wellness must also be considered.

Emergency Department and Beyond

Bedside

Caring for patients who visit the ED frequently can feel challenging for emergency clinicians. As mentioned above, many have complex social needs that EDs are not currently well-designed to address [18]. In addition, patients who return for similar complaints again and again can create a sense for providers that preventing future visits is futile or, dangerously, that such patients are not ill. Frequent ED use has been found to be an independent predictor of short-term mortality [15], so the medical concerns of such patients should not be minimized.

Taking the time to identify and intervene around patients' social needs—often on top of the presenting medical or behavioral health complaint—may be challenging for busy EM clinicians due to time constraints. Partnering with supporting providers and staff including ED social workers and health care navigators may be needed to most effectively care for individuals with frequent ED use, and to provide care that address individuals' whole-person needs. While some ED clinicians may feel this is "not the ED's job," frequent ED users can be a captive audience during a long ED stay or hospitalization. This time can and should be used to identify social needs and engage patients with community-based resources.

In order to effectively care for frequent ED users, ED clinicians must be able to accurately identify them during their visits. Yet while many ED clinicians may think they "know" their frequent ED users, research reveals that frequent ED users travel to more than one ED, so that some individuals who are frequent ED users may not be identified as such if they visit multiple different EDs [3]. Levels of ED use can be severely underestimated if not accounting for a patient's entire universe of ED visits. Information technology solutions that allow emergency clinicians to see their patients' ED visits outside of their own hospital such as the Emergency Department Information Exchange (EDie) or EPIC Care Everywhere make this evident [21–23]. By linking patients across hospitals, a study of California state-wide data detected nearly 50% more frequent ED users than methodologies without record linkage would have found [3].

Why does this matter? Coordination of care within and outside of the health care system is crucial for frequent ED users. Few programs have proven effective at reducing ED visits among frequent ED users. However, the most promising programs are those that attempt to care for the whole individual over a more prolonged period of time, rather than intervening during only a single ED visit. These include ED or community-based case management programs that identify social needs and provide resources and ongoing contact with individuals both inside and outside the health care system. While most research on programs to reduce frequent ED use focus on reducing ED use as a primary outcome, this should not be the only goal. Many frequent ED users have multiple social needs including unstable housing, poor social support, and food insecurity. Attending to these needs, which influence health and health services utilization, is a worthy goal in and of itself. In addition to examining programs' impact on ED use, connections to sustaining services such as primary care, stable housing, and social supports must be included as key outcomes that help to determine a program's success.

Hospital/Healthcare System

ED visits in the US continue to increase every year, illustrating the large demand for acute services [24]. Many hospitals and health care systems view ED visits themselves as adverse outcomes. Rather than view ED visits in a negative light, hospitals and healthcare systems would be well served to look at the ED as a potential point of intervention [25]. Because frequent ED users are seen so often, failing to intervene to address their underlying health and social needs is a missed opportunity.

Some hospitals are investing in ED-based staff or programs to provide comprehensive non-traditional services. For example, in California, an increasing number of EDs are participating in state-funded "ED BRIDGE" programs to initiate medication-assisted treatment for opioid use disorder in EDs. A current bill under consideration in California would allocate state funds to provide EDs with substance use counselors who can intervene with high-risk patients during their visits and refer them to continued outpatient substance use treatment.

A growing number of EDs in California, Washington, Oregon, and over 20 other states are now on the EDie platform. This platform allows for real-time identification of frequent ED users and individuals with high-risk prescription substance use and facilitates the input of care guidelines that can be shared across all participating facilities in an effort to coordinate care and avoid duplication of services. Some health systems have invested in trained staff to work specifically with frequent ED users who are identified by EDie, most of whom have significant social needs that physicians may not have time to explore or address during the visit. Investing in these types of resources is critical for hospitals and health care systems.

While ED visits are often portrayed as "avoidable" by hospitals and health systems, as emergency clinicians at the bedside we understand that many circumstances underlying frequent ED visits are outside of our patients' control. Frequent ED users' high social needs often represent structural societal ills (e.g., lack of affordable housing, poverty), yet others result from the chronic illnesses which stem from these societal inequities [26]. It has been well documented that many frequent ED users are quite ill and often require hospital admission [5]. While ED providers and staff can take actions during the ED stay to begin to address social needs, coordination of care during the hospitalization and discharge planning from the inpatient setting are critically important and require staff who are knowledgeable about community-based resources and who have dedicated time to address patients' non-medical needs.

In addition, many frequent ED users also utilize primary care and specialty services including oncology, palliative care, nephrology, and other services. Research shows that increasingly, outpatient providers refer a large proportion of all ED visits nationwide [27]. Hospital systems can enable and encourage coordination of care that includes the ED in multiple ways. Outpatient providers can also help by documenting a plan and providing information around goals of care that are accessible to ED providers during the visit and can help guide emergency decision making. The ability for patients to have rapid post-ED visit follow-up in the outpatient setting is critical—health systems that allow for open access, next day, and after-hours appointments can meet this need. In addition, ED providers must be able to reach outpatient providers to assist with care coordination in real-time during an ED visit. Health systems that facilitate such opportunities for real-time consultation between outpatient and ED providers may also be able to avert hospital admissions.

It is also clear that frequent ED users access community-based services of which health system providers may not be aware [4, 5]. Multiple mechanisms exist to improve care for frequent ED users by allowing in-reach of community organizations and services into EDs. As an example, in San Francisco, a community paramedicine team, EMS-6, works with frequent 911 callers. EMS-6 can be called or paged from an ED to come to meet with a patient on their caseload whenever possible [28]. San Francisco is leveraging the EDie platform to enter data from city housing assessments that flag ED patients who are prioritized for scarce housing units, many of whom are also frequent ED users. When contacted, housing services staff will come to the ED to assess and coordinate care for patients around housing placement. Such partnerships were made possible by city and state commitments to improve care coordination (e.g., the San Francisco Health Plan [29], the SF General Fund, and the San Francisco Whole Person Care Pilot [30]). In addition, it required research combined with concerted efforts at stakeholder engagement over months and years to determine how to best direct efforts and educate direct care providers about the importance of in-reach into EDs.

Many hospital systems are starting to invest in or partner with community organizations to address social needs that contribute to frequent health system use. Recently, Kaiser Permanente invested $200 million in a program to prevent both eviction and homelessness [31], and also purchased a 41 unit building in Oakland for the purposes of providing permanent supportive housing to Oakland residents experiencing homelessness [32]. Other programs and research collaborations are developing to better understand social needs that are connected to frequent use of the health system. These initiatives leverage normally siloed data sources from housing, health care, the community, and jail to obtain a more comprehensive picture of frequent ED users' needs and provide empirical evidence that can support care coordination efforts [4]. In addition to the EMS-6 team, the public health system in San Francisco has invested in multiple programs to serve frequent ED users including a sobering center for frequent ED users with substance use disorders that has embedded case management [33, 34]. In addition, some hospitals are developing relationships with community-based providers of residential substance use services for which the hospital pays for a period of the patient's stay, allowing for a warm handoff to ongoing substance use treatment directly from the ED.

Societal Level

It is clear that numerous social needs underlie frequent ED use along with medical needs, many of which are themselves a result of social inequities and gaps in services outside of the health care system. Yet many parts of the health system are not responsive to the needs of frequent ED users, some of whom require very low barrier access to care. In the US, EDs provide the lowest barrier health care available. Emergency medicine is the only specialty mandated by the federal EMTALA law to provide care 24–7 for all comers. It should not be surprising, then, that the number of ED visitors increases every year as the supply of primary care and other services remains stable or decreases, despite societal needs [35].

A complete picture of frequent ED users will reveal that for many, their ED use alone does not define them, but is a symptom of other unmet needs and a fragmented health and social care system [4]. While much of the emphasis around frequent ED use has been focused on urban environments, it no doubt permeates rural and suburban environments as well [36], although the underlying social needs may vary from community to community. In many states, Medicaid agencies have realized that frequent ED users and frequent health system users in general will benefit from increased care coordination and management and have taken various measures that either mandate or incentivize innovation in this area.

The Washington State Medical Association, the Washington State Hospital Association, and the Washington State American College of Emergency Physician chapter collaborated on the "ER is for Emergencies" program to implement "seven best practices" to improve care coordination and curb costs associated with high ED use [37]. The best practices included developing patient care plans for frequent ED users, adopting interoperable health information exchange technology, and using feedback information to track data on frequent ED users and evaluate the efficacy of interventions.

These best practices were developed and legislated, in part, as an alternative to the misguided "Three Visit Rule" proposed by Washington State's Health Care Authority which would have denied reimbursement for "non-emergency" visits to EDs [38, 39]. Implementation of the best practices correlated with nearly $34 million of savings in 2013, improvements in coordination with primary care, an approximately 10% decrease in ED use (including by frequent ED users), and a 24% reduction in visits resulting in a scheduled drug prescription [39, 40].

Other interventions have focused more specifically on social needs. The Center for Medicare and Medicaid Services (CMS) has supported several initiatives at the state level to facilitate improvements in coordinated care for high-utilizing patients. In California, the state Medicaid program (Medi-Cal) received $1.5 billion to develop whole-person care (WPC) pilot projects as part of their renewed Medicaid 1115 waiver. The WPC pilots focus on reducing unplanned emergency medical care by better meeting the medical, behavioral health, and social needs of high-risk vulnerable populations. For example, San Francisco County's program is focused on improvements in health outcomes for patients experiencing chronic homelessness. Efforts to date have concentrated on a) developing and leveraging data integration across medical, mental health, substance use, and social services especially for frequent users; and b) enhancing care coordination efforts through the expansion of services like medical and psychiatric respite, multi-disciplinary "street medicine" teams, and improved inter-agency communication on high priority populations. Initiatives have fostered collaboration on the city/county level, between the Department of Public Health, Department of Homelessness and Supportive Housing, the Mayor's Office, the Human Services Agency, academic universities such as the University of California San Francisco, Medicaid managed care payors like the San Francisco Health Plan, and other entities like the San Francisco Fire Department (including EMS-6 as described above).

CMS is also currently supporting a 5-year $157 million Accountable Health Communities (AHC) program to examine how systematically screening and addressing patients' health-related social needs impacts health care utilization and costs among their beneficiaries. While robust literature on the health impact of social care interventions is still growing, there have been several recent well-done studies demonstrating improved health outcomes and reduced medical expenditures and costs [41–45]. For example, Hennepin Health—a county-based safety-net accountable care organization in Minneapolis, Minnesota created as a partnership between four organizations aimed to deliver integrated medical, behavioral, and social services—demonstrated a 9% decrease in ED visits over 1 year [46]. We expect to learn much more about the impact of social service screening and linkage on acute care utilization through the anticipated rigorous AHC evaluation program evaluation.

Recommendations for Emergency Medicine Practice

Basic

- Take every visit by a frequent ED user seriously. Recognize that frequent ED users are often medically ill, and that frequent ED use is an independent predictor of mortality [15]. At the same time, do not medicalize the social needs of frequent ED users.
- When possible, facilitate warm hand-offs (e.g., verbal communication with an outpatient care manager; provision of accompaniment or transportation to a referral site) for the highest-risk frequent ED users to facilitate improved care coordination. If social workers or care navigators are available in your ED, involve them in the care of frequent ED users.

Intermediate

- Take advantage of health information exchanges to gain a better understanding of the ED use patterns of frequent ED users and gain access to critical information such as prescription drug monitoring and care plans.
- Identify and, with appropriate inter-disciplinary support, address frequent ED users' medical *and* social needs with equal intensity and commitment. Partner with patients to understand and meet their self-identified needs, using their priorities as a guide. For example, if a patient presents to an ED reporting food insecurity as the highest priority, focus treatment efforts on addressing this concern.
- Develop and participate in a multi-disciplinary work group to identify the highest ED users in your health system and discuss how to better serve them in case conferences. These teams may include social workers, patient navigators, intensive care managers, and other staff from both the ambulatory care and inpatient care setting.

Advanced

- Work with partners across the health system (e.g., ambulatory care, pre-hospital care, intensive care management programs) to identify and advance opportunities that ensure frequent ED users get needed care in the least resource-intensive setting possible.
- Partner with agencies outside the health delivery system (e.g., housing and other social service agencies) to develop an integrated approach to caring for frequent ED users in a *whole-person* manner via data sharing and innovative payment methods.
- Work with your specialty society and advocacy organizations to highlight to policy makers the social needs and challenges that underpin frequent ED users.

Teaching Case

Clinical Case

X is a 59-year-old with more than 120 ED visits in a 1-year period, including 55 visits in a 2-month period. The majority of ED visits were to a single hospital, but she also had encounters with three other local hospitals. Based on X's social history in an integrated data system, X had been homeless for 10 years. X has a history of a traumatic brain injury (TBI) from a car accident, with resulting seizures and falls. X has no short-term memory whatsoever and does not recollect previous near daily visits to the ED, or any of the providers with whom she interacts. Because X lives on the street she is frequently brought to the ED by EMS after bystanders have witnessed a seizure. X often forgets to take prescribed medications due to both lack of stable housing and social support, as well as TBI. Providers treating X for the first time often incorrectly assume that she is under the influence of alcohol.

ED staff, including physicians, navigators, and social workers, coordinate with street medicine providers and the community paramedicine team to secure a bed for X at a Navigation Center (a service-intensive shelter). They also create a care plan within EDie with specific instructions that can be viewed by providers across the platform, should X present at other facilities. The care plan includes X's recent health and social history, including a description of her memory issues, contact numbers for her primary care provider and the paramedicine team, and instructions on how ED providers can redirect X back to the Navigation Center.

After several months in the Navigation Center, X still presents to the ED, but much less frequently than when she was unsheltered. ED providers hold a case conference with staff from Street Medicine and the Navigation Center to discuss how to best support X in the transition to permanent supportive housing, given X's propensity to wander, and the need for daily anti-seizure medications.

X moves into a small apartment, with in-home support services including assistance with meals, transportation, and medication administration. ED providers update the EDie care plan to include contact details for the front desk of X's apartment and how to redirect X there. X occasionally visits the ED, but had four visits in 3 months, compared to 75 visits in the same 3-month period during the preceding year. ED providers continue to work closely with X's community-based case manager to coordinate care.

Teaching Points

1. Recognize the social needs of a frequent ED-using patient and consider how these needs may impact their health.
2. Involve social workers, care navigators, and community-based staff in the care of these patients whenever possible. This may involve having these providers in-reach to their patients in the ED and having ED providers attend case conferences in the community.

3. Use health information exchanges to create care plans that are accessible to providers in other hospitals. Identify personnel to keep these care plans as up to date as possible, when key information changes (e.g., provider contact details, patient's status on waitlists for services).

Discussion Questions

1. In this instance, providers had access to an integrated data system to inform management and allow them a more comprehensive view of this patient's ED and other service use. Even when these systems are in place, not all providers take the time to look at them. How can we encourage the implementation of integrated data systems, and how might you get colleagues to actually use them to improve care for frequent ED users?
2. Frequent ED users are often unable to have their needs fully assessed or met in the current ED environment. How might you work to improve the ED visit so that the non-medical needs of frequent users are identified and intervened upon? How might you involve community-based organizations in ED "in-reach" (visiting patients when they are in the ED for interventions) and community-based care planning?
3. Many providers made assumptions about this patient—that she had an alcohol use disorder—and did not realize the documented traumatic brain injury might be the underlying cause of the seizure disorder and memory loss. How can ED providers avoid these types of biases in caring for frequent ED users?

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