



Hennepin Health

Minneapolis Grain Exchange Building
400 South Fourth Street, Suite 201
Minneapolis, Minnesota 55415

Altered Mental Status Focus Study

Emergency Department Use for Altered Mental Status

FOCUS STUDY

Background

Many Hennepin Health members visit the emergency department (ED) to access health care that might instead be provided in a primary care clinic setting. Accessing healthcare through the ED for non-emergent conditions can lead to unnecessary expense, crowding and reductions in access for those in true need of emergency services (Wood, 2014). Patients accessing care through the ED is a concern for Hennepin Health since according to CMS, Medicaid beneficiaries utilize the ED at almost twice the rate of privately insured individuals (Centers for Medicare & Medicaid Services, 2014). To address this issue among the Medicaid population in Minnesota, DHS has identified ED utilization as a PMAP/MNCare contract withhold for 2018.

Hennepin Health strives to reduce ED use by members in all products for non-emergent conditions. The Medical Administration team within Hennepin Health uses outreach and care coordination to connect enrollees with primary care in order to reduce ED use for non-emergent care. Coordination of care could be enhanced with a better understanding of the underlying characteristics, including the medical, behavioral and social history of individuals that frequently use the ED for non-emergent conditions. For example, an ED diversion program recently implemented in Oregon found that many of the frequent ED users had a history of emotional, physical or sexual trauma and half had untreated behavioral health needs (Wood, 2014). These findings suggest that exploring the medical history, social influences and common diagnoses among individuals who visit the ED could enhance efforts to reduce ED utilization and achieve this 2018 DHS contract withhold requirement.

Goals

The goal of this focus study is to better understand the characteristics of individuals who visit the ED for frequently diagnosed conditions. Increased awareness of the underlying medical, behavioral and social characteristics among these members may assist in better targeting the unique needs of this population. For the purposes of this study, ED and enrollee data from 2016 were reviewed. There were a total of 12,144 members enrolled with Hennepin Health plan in 2016. The majority of enrollees participated in the Hennepin Health - PMAP product (78%), Hennepin Health - SNBC (19%) and MNCare (3%).

The rate of ED utilization for non-emergent conditions has been an ongoing concern for Hennepin Health. A Performance Improvement Project (PIP) was conducted by Hennepin Health in 2013 designed to reduce non-emergent ED use by adult plan members. The PIP called, "Reducing Emergency Department Utilization in Adults through a Collaborative Healthcare Model" completed by Hennepin Health in 2013, excluded from the project members with ED claims for conditions related to mental health, chemical dependency and altered mental status (AMS). However, these conditions are often the most common diagnoses for Medicaid recipients who visit the ED. According to CMS, people with behavioral health and substance abuse problems comprise 12.5% of all ED visits across all types of payers (Centers for Medicare & Medicaid Services, 2014). For this reason, a study of high ED utilization

that includes behavioral and chemical dependency conditions is needed to increase the ability of Hennepin Health to address the underlying issues that cause frequent use of the ED by enrollees for non-emergent care.

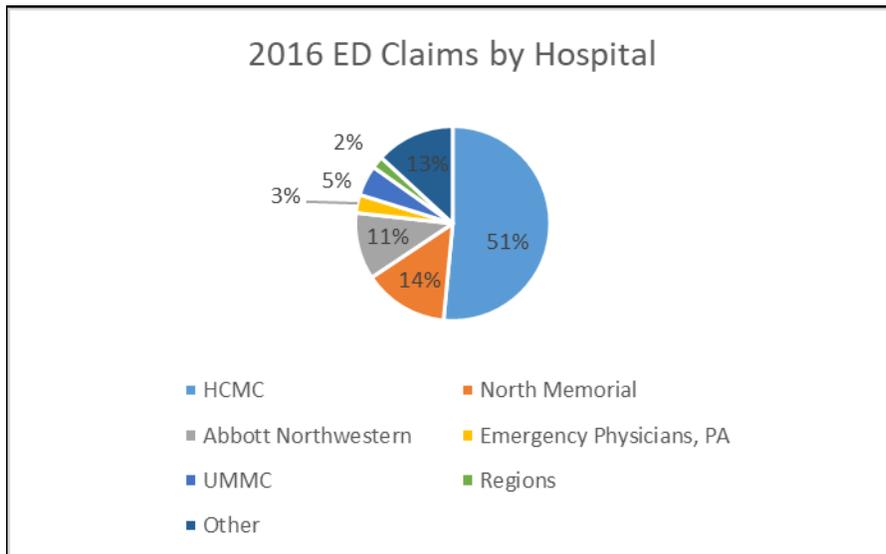
The goal of this focus study is to:

- 1) Identify members with the most frequently diagnosed conditions among Hennepin Health members visiting the ED in 2016
- 2) Evaluate possible trends in social, behavioral and medical health characteristics of these individuals
- 3) Propose a strategy to decrease use of the ED by study participants in light of the social, behavioral and medical health characteristics of this population

Methods

Retrospective analysis of administrative data from 43,584 lines of claims was conducted to determine the most frequent first diagnoses among all Hennepin Health enrollees who visited the ED between January 1, 2016 and December 31, 2016. The ED diagnosis for study was chosen based upon high frequency and level of complexity. The ED diagnosis chosen for study was sorted by hospital and then by health plan product. Study participants included members who visited the hospital with the highest volume of ED claims for the study diagnosis with medical records available to Hennepin Health during the time of study.

Of the 43,584 charges on ED claims for Hennepin Health members, more than half were for visits to Hennepin County Medical Center (HCMC).



During 2016, the most frequent ED diagnoses for Hennepin Health members included conditions related to: Alcohol (6%), Altered Mental Status (AMS) (4%), Chest Pain- Unspecified (3%) and Other Chest Pain (2%).

2016 ED Diagnosis on Claims

ED Diagnosis	Count
Alcohol Related	2,776 (6%)
Altered Mental Status (AMS)	1,772 (4%)
Chest Pain, Unspecified	1,115 (3%)
Other Chest Pain	794 (2%)

Although the highest number of claims were for alcohol related conditions, claims with a diagnosis of AMS were also high in volume for 2016. AMS is a common ED diagnosis, but the origin of this condition among the majority of AMS patients is unclear.

What is AMS?

- AMS is a general term used to describe various disorders of mental functioning that can range from slight confusion to coma (Blanchard, 2017).
- AMS may be diagnosed in four to ten percent of ED patients (Xiao, 2012). This finding is consistent with the claims charges for members of Hennepin Health who visited the ED for AMS in 2016 (4 percent).
- Although AMS can be caused by physical conditions, such as stroke, high/low blood sugar or infection, patients diagnosed with AMS in the ED often present with psychotic symptoms.
- Psychotic manifestations of AMS can include delusions, hallucinations and disorganized speech (Pinson, 2017).
- Patients diagnosed with AMS can be difficult to treat since they often provide incomplete and inaccurate disease and health histories (Xiao, 2012).

Impact

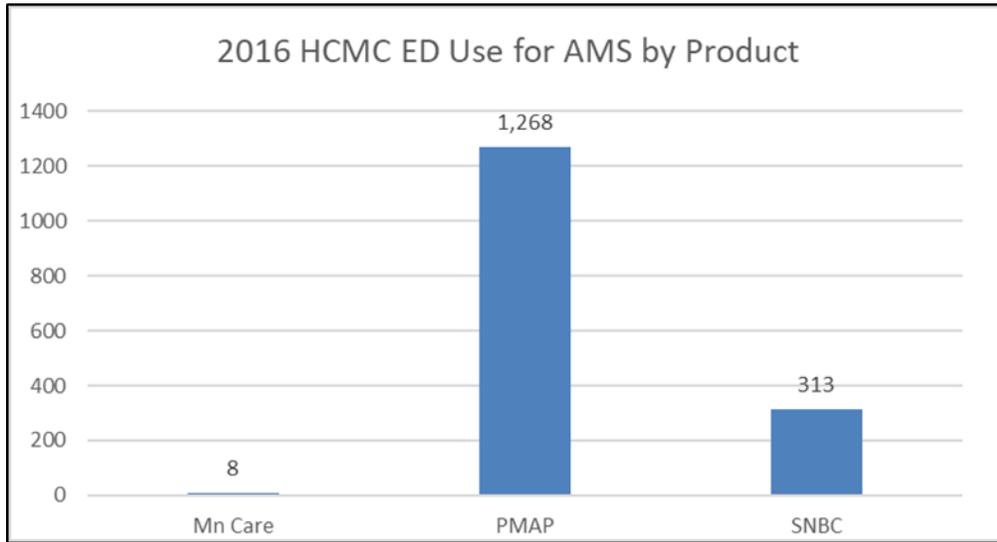
In 2016, there were 1,772 charges on ED claims with a first diagnosis of AMS among all Hennepin Health members. Among the 1,772 claims for AMS, 1,389 claims (78%) were for PMAP members, 375 claims (21%) were for SNBC and 8 claims (<1%) were for MNCare.

Although only **51 percent** of all ED claims in 2016 were for visits at HCMC, **90 percent** of ED claims for AMS among Hennepin Health members were for services provided by HCMC.

2016 ED Claims for AMS by Hospital all Products

Hospital	Claims
Fairview Southdale	20 (1%)
HCMC	1,589 (90%)
North Memorial	95 (5%)
Regions	43 (2%)
Other	25 (1%)
Total Claims	1,772 (100%)

The majority of Hennepin Health members who visited the HCMC ED in 2016 for AMS participated in the Hennepin Health- PMAP product.



Focus Study Participants

- Hennepin Health enrollees who have 2016 HCMC ED claim(s) with AMS as the first diagnosis
- Total claims that met criteria for study:
 - Hennepin Health -PMAP/MNCare- 1,276
 - Hennepin Health -SNBC- 313
- Total unique members with claims:
 - Hennepin Health - PMAP/MNCare- 377
 - Hennepin Health - SNBC- 111
- The average number of ED visits for AMS among study participants was just over 3 visits
- The top utilizer for all products had 43 visits to the HCMC ED for AMS in 2016

Study Participant Demographics- HCMC ED Claims for AMS by Race

Race	PMAP/MNCare Count	PMAP/MNCare Rate	SNBC Count	SNBC Rate	All Products Count	All Products Rate
African American	345	27%	196	63%	541	34%
Native American	278	22%	24	7%	302	19%
Somali	194	15%	21	7%	215	13%
White	403	32%	56	18%	459	29%
Other	56	4%	16	5%	72	5%
Total	1,276	100%	313	100%	1,589	100%

Review of the HCMC EPIC health records for study participants revealed that the Hennepin Health members who visited the HCMC ED for AMS in 2016 experienced certain social, mental health and physical conditions at higher rates than the general population in the United States.

Rate of Observed Conditions among Members Diagnosed with AMS at HCMC

History of Condition Noted in EPIC	PMAP/ MNCare Count	% of Condition Among PMAP/MNCare AMS	SNBC Count	% of Condition Among SNBC AMS	% of Condition in U.S. Population
Head Injury	463	36%	129	41%	NA
Incarcerated	1,087	85%	241	77%	<1%
Hepatitis C	204	16%	82	26%	1%
Schizophrenia	9	<1%	84	27%	1%
Child Maltreatment	415	33%	105	34%	8-17%
ADD/ADHD	91	7%	44	14%	4%
PTSD	247	19%	90	29%	7%
Homeless	954	75%	170	54%	<1%
Suicidal Ideation and/or Attempt	516	40%	130	42%	4%
Depression	813	64%	200	64%	7%
Alcohol Abuse	1,241	97%	285	91%	12%
TB Exposure and/or Infection	214	17%	69	22%	NA
HIV Positive	44	3%	9	3%	<1%

Key findings of the 2016 ED Visits for AMS Focus Study

2016 ED Visits for AMS occurred at HCMC

Although only 51% of ED visits for all diagnoses occurred at HCMC, 90% of AMS diagnoses occurred at HCMC.

History of Incarceration

Approximately 85% of Hennepin Health- PMAP/MNCare and 77% of Hennepin Health - SNBC members who presented to the HCMC ED who were diagnosed with AMS were either obtaining care from the

hospital while incarcerated or had a history of involvement with corrections noted in their EPIC medical record.

Child Maltreatment

Among the study participants, at least 33% of members in all products had a noted history of child maltreatment. The rate of child maltreatment among study participants is between two and four times higher than the rate of child maltreatment reported within the general United States population.

TB, Head Injury, Hepatitis C and HIV

Study participants in all products have a history of the following conditions at higher rates than are present in the general United States population: tuberculosis, history of head injury, Hepatitis C and HIV positive.

Native American and Somali Enrollees

Native Americans and Somalis account for <5% of both Hennepin Health membership and of the total Hennepin County population (Data USA, 2018). However, Native Americans account for 22% and Somalis account for 15% of visits to the HCMC ED for AMS among Hennepin Health- PMAP/MNCare members and 63% of Hennepin Health-SNBC study participants were African American.

Lessons Learned

The results of this focus study reveal that the majority (84%) of AMS study participants have a history of incarceration. This is notable while recent studies suggest that individuals with a history of incarceration were more likely to have poor health outcomes, utilize high-cost health services and exhibit low use of regular medical services. Furthermore, a history of incarceration has been associated with a higher prevalence of: HIV and STIs, mental illness, substance abuse and a higher frequency of chronic diseases (Erlyana E., 2014). According to the Bureau of Justice Statistics, more than half of released inmates are mentally ill and up to a quarter meet the criteria for psychosis (Shwarzapfel, 2016). Additionally, many participants in this focus study experienced child maltreatment. It has been established that approximately fourteen percent of men and thirty-six percent of women incarcerated in the United States were abused as children, almost twice the frequency seen in the general population (Childhelp, 2018).

The results of this study are consistent with other studies that demonstrate that incarcerated individuals have increased need for medical and behavioral health services. Uninterrupted access to adequate health care may alleviate negative social and health consequences for former inmates and improve the success of their re-entry to society (Erlyana E., 2014). However, under the current Medicaid system, individuals may lose their Medicaid coverage during their incarceration, depending on the length of the incarceration. Upon release, individuals may be assigned to a different health plan or may not have any Medicaid coverage until their eligibility has been reestablished. The opportunity to provide uninterrupted access to adequate health care for former inmates may exist after their re-entry to society.

The AMS diagnosis can be applied to a variety of medical conditions among patients who visit the ED with impaired mental function. To better address the needs of members who are diagnosed with AMS in the ED, additional analysis of the primary condition(s) underlying the AMS diagnosis will be

completed. The analysis will include the identification of underlying conditions such as history of incarceration, childhood maltreatment and other co-morbidities. Additional next steps for Hennepin Health will include working with internal care coordination staff and HCMC partners to determine the best interventions to improve the health of members diagnosed with AMS in the ED. Interventions should be culturally appropriate in order to respond to the racial disparities present within this study population.

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