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The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Assistant Dean for MSN and DNP Studies, on behalf of the program; we verify that this is the final, approved version of the student's DNP Project including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Hannah Young, Student

Dr. Melanie Hardin-Pierce, Advisor

DNP Final Project Report

Assessment of Alcohol Withdrawal Syndrome Incidence and Identification of Other Correlating
Risk Factors in Patients Admitted Through the Emergency Department

Hannah Young

University of Kentucky

College of Nursing

Spring 2018

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ASSESSMENT OF ALCOHOL WITHDRAWAL SYNDROME

Dedication

This work, all previous work, and my DNP project is dedicated to my three beautiful daughters, Layla, Zoe, and Riley, who have inspired me to continue on this journey no matter what. As well as my family, and friends, who have been there by my side, and pushed me through, and held me up as I have progressed through this last three years of strenuous work. Finally to all of my work family who have provided me with support, and help in so many ways to make this dream come true.

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Abstract

PURPOSE: The purpose of this project was to measure adherence rates to the current alcohol use screening process, and identification of correlations of alcohol use and outcomes in patients admitted to Norton Hospital, via the emergency department.

METHODS: The study design is a retrospective descriptive evaluation, of adherence to the current alcohol use screening process, and associations among age, gender, ethnicity, length of stay, number of ICU days, restraint use days, level of care at admission (ICU, TCU, LLM/tele, MS), incidence of AWS/DTs, and activation of the CIWA protocol among the adult inpatient population of Norton Hospital's downtown campus, admitted via the emergency department (ED), for greater than 24 hours, between April 2016 and April 2017. The sample consisted of 300 randomly selected patient charts, using the inclusion criteria.

RESULTS: It was found that overall screening adherence for alcohol use on patients admitted from the emergency room was nearly 100%. Among the study population 26.3% screened positive, 4.3% had the specific diagnosis of alcohol withdrawal syndrome, 4.7% were treated with CIWA protocol. Those who screened positive were more likely to be male, with a mean age of 49.8 years. No statistical differences in ethnicity, level of care at admission, restraint use, mortality, number of ICU days, and length of stay were found within the study sample population, between those who screened positive or negative for alcohol use at admission.

CONCLUSION: Further research needs to be done to better understand associations between alcohol use screening and ethnicity, level of care at admission, restraint use,

length of stay, number of ICU days and mortality in the overall population at Norton Hospital's downtown campus. Retrospective review revealed that there was a high level of adherence to the alcohol use screening process by the health care staff. The screening process for alcohol use at admission is well documented within those admitted via the emergency department.

Assessment of Alcohol Withdrawal Syndrome Incidence and Identification of Other Correlating
Risk Factors in Patients Admitted Through the Emergency Department

Introduction

With alcohol and substance abuse problems continuing to rise rapidly throughout our nation, we are in need of a way to ensure proper identification and treatment of alcohol withdrawal syndrome in persons who present to the emergency department, and undergo an abrupt cessation of alcohol consumption due to an acute illness, and hospitalization. This study is designed to determine if there was adherence to an established alcohol use screening process during the time frame, ensuring that those who are at risk for the development of alcohol withdrawal syndrome are being treated with the Clinical Institute Withdrawal Assessment (CIWA) protocol, and to determine correlating risk factors and demographics. This study was designed with alignment of Neuman's Systems Model nursing theory. Treating the patient as a fluid and dynamic being responding to their own personal environment leading to sickness and establishing health, using primary, secondary and tertiary care interventions. Focusing on the patient as a whole, with multidimensional, layers of well-being: physiological, physiochemical, psychological, sociocultural and spiritual (Petiprin, 2016).

Background

As the problem with alcohol abuse and other substances continues to grow exponentially throughout our nation, and in particular in the state of Kentucky, we have seen a steady rise of alcohol withdrawal syndrome (AWS) incidence within the general hospital inpatient population. Approximately 9% of the adults in the United States meet the criteria for alcohol abuse (Burns, 2015). Within the general inpatient population alcohol withdrawal syndrome (AWS) can present in nearly 30% of patients; if left untreated AWS has a 15% mortality rate (Ungur, Neuner, John,

Wernecke, & Spies, 2013). With early recognition and treatment, however, that mortality rate falls dramatically to 2% (Ungur et al., 2013).

At the downtown campus of the 379 bed Norton Hospital in Louisville, KY, there were 16,768 inpatient admissions in 2015 (*US News Health Care Report*, 2016). Based on the 30% incidence of AWS in the general inpatient population, this could have left 5,030 patients at risk, or 113 patients on any given day for the development of alcohol related complications that year. By ensuring that patients are screened for alcohol use at the time of hospital admission, a primary healthcare intervention, we have the opportunity to identify patients at risk for AWS so that timely prevention and/or treatment, a secondary healthcare intervention, can occur.

The abrupt cessation of alcohol intake by alcohol dependent patients puts them at risk for withdrawal, and a variety of complications. These include development of AWS, post-operative complications and infections, increased length of stay and death (Bard et al., 2006). All of which can upset the balance of the wellness continuum described by Neuman's Systems Model. This can also cause problems for the hospital itself. For example the staff can be at risk of burnout, due to stress from caring for confused and combative patients; also it can be difficult to determine whether a patient's confusion is due to AWS or another diagnosis, leading to increased costs and unnecessary testing (Ungar et al., 2013). In addition, the hospital is at risk for increased post-operative complication rates, increased length of stay, and increased mortality, all of which lead to increased costs, and decreased patient and provider satisfaction (Ungar et al., 2013). In 2016 alone, healthcare costs related to alcohol induced complications in the United States amounted to \$21 billion (Trevejo-Nunez, Kolls, & De Wit, 2016).

Currently, the screening tool for alcohol use at Norton Hospital is a yes or no question asked during the admission assessment within the admission navigator in the electronic medical

record system EPIC. This important screening tool is not linked to prompt the provider to initiate treatment if the patient screens positive. The current standard of care treatment for AWS at Norton Hospital is utilized with the Clinical Institute Withdrawal Assessment (CIWA). This protocol is a thorough nursing assessment done by the bedside nurse, using severity of ten symptoms of withdrawal, each tied to a number based upon level of severity. These ten numbers are then added together for an overall composite score. The composite score is then referenced for the appropriate treatment and frequency of reassessment (Appendix B). If the alcohol use screening is left undocumented it leaves potentially hundreds of patients at risk for untreated AWS, and preventable healthcare dollars wasted.

The evidence shows that treatment preventing AWS at the earliest possible juncture, with a protocol for symptom triggered management such as the CIWA protocol, produces the best outcomes (Rubinsky et al., 2013; Melson, Kane, Mooney & McWilliams, 2014). These outcomes include a decrease in the development of AWS and Delirium Tremens (DTs), as well as decreases in use of restraints, a need for intensive care unit level of care, length of stay, risk of infections (sepsis, pneumonia, and surgical site), and complications from organ dysfunction (Melson, et al., 2014; Ungur, et al., 2013).

By screening all patients for alcohol use at admission via the emergency department, (where a large portion of the inpatient admissions occur at Norton Hospital's downtown campus), and ensuring adherence to the documentation of the current method in the admission navigator under alcohol use screening, we can capture a larger percentage of patients who will qualify for treatment, and monitor for complications of AWS. In turn reducing alcohol use related complications and improvement of outcomes such as length of stay, utilization of higher

levels of care, use of restraints, and mortality. As improvement in these things can reduce health care cost and increase patient satisfaction.

Purpose

The purpose of this project was to measure adherence rates to the current alcohol use screening process and identify outcomes (length of hospital stay, number of ICU days, restraint use, level of care at admission, and mortality), of patients admitted to Norton Hospital. The adherence to the current alcohol screening process was reviewed via retrospective chart review. The specific aims of this project were:

1. Measure adherence rate to the current alcohol use screening process, on all adults (those greater than 18 years of age), admitted as inpatients from the emergency department (ED), for greater than 24 hours between April 2016 and April 2017.
2. Identify subject demographics (medical record number, age, ethnicity, and gender), length of stay, number of ICU days, restraint use days, mortality, level of care at admission (ICU, Telemetry Care [TCU], Monitored Medical-Surgical [LLM/tele] or Non-monitored medical surgical [MS]), incidence of AWS/DTs, and activation of the CIWA protocol in all adult patients admitted through the ED, for greater than 24 hours between April 2016 and April 2017.
3. Perform in-group comparisons of subject demographics (age, ethnicity, gender), length of stay, number of ICU days, restraint use days, mortality, level of care at admission (ICU, TCU, LLM/tele, or MS), incidence of AWS/DTs, and activation of the CIWA protocol, among adult patients who screened positive for alcohol use, patients who screened negative for alcohol

use, and those patients who were not screened for alcohol use upon admission from the ED for greater than 24 hours, between April 2016 and April 2017.

Methods

This study was a single-center, retrospective, descriptive evaluation of adherence to the current alcohol use screening process, and the associations between age, gender, ethnicity, length of stay, number of ICU days, mortality, level of care at admission, incidence of AWS/DTs, and the activation of the CIWA protocol, among the adult inpatient population of Norton Hospital downtown campus, admitted via the ED.

Setting

Norton Hospital is one of five main hospitals of the Norton Healthcare System, and is the focus of this study. Norton Hospital's downtown campus is a general medical surgical hospital, with 379 inpatient beds, located in the urban, downtown area of Louisville, KY (*US News Health Report*, 2016). It serves a large population from Jefferson County and many of the outlying, rural areas. This site was selected for use in this study as it provides care to a wide range of patients, and has a highly utilized emergency room, from which the patients were selected.

Sample

The primary population for this study consisted of adult inpatients admitted through the ED for greater than 24 hours between April 2016 and April 2017 at Norton Hospital's downtown campus. From this primary population, 300 patients were randomly selected for the study.

To meet inclusion criteria for this study, subjects had to be adults, aged greater than 18 years and, admitted as inpatients via the ED, for greater than 24 hours to Norton Hospital's downtown campus between April 2016 and April 2017.

Because AWS/DTs occur mostly in the adult population, minors were excluded, from this study.

Data Collection

Prior to the collection of data, approval was obtained from the University of Kentucky Institutional Review Board (IRB) and the Norton Healthcare Office of Research and Administration (NHORA). This study was conducted as a retrospective chart review. The research office of Norton Healthcare randomly selected patient charts for the study from the Norton Hospital electronic patient database and sent to the primary investigator. During data collection, the patient charts were accessed using the patient medical record number, data for the study were collected, and transferred to an electronic spreadsheet, made by this primary investigator, using the patients de-identified unique study ID, and the demographic and outcome variables requested to be collected. The following demographic variables (age, ethnicity, and gender), and outcome variables (length of stay, number of ICU days, restraint use, restraint use days, mortality, incidence of AWS/DTs, level of care at admission, activation of the CIWA protocol, and alcohol use screening documentation) were reviewed.

Data Analysis

Descriptive statistics, including means, standard deviations, ranges, medians, and percentages were used to describe the patient demographic and outcome variables. Only one individual was not screened for alcohol use, therefore group comparisons of study variables were based on those who screened positive versus negative for alcohol use. Continuous variables were compared between those who screened positive, and those that screened negative for alcohol use, using the independent sample *t*-tests. For categorical variables the chi-squared test of association, or the Fisher's exact test was used. The Mann-Whitney U-test was used to

compare groups on length of hospital stay, and number of ICU days outcomes, since the distributions were skewed. All statistical analysis was done using SPSS version 24 and an alpha level of .05 was used for statistical significance throughout.

Results

Sample Characteristics

For this study, 300 charts were reviewed from randomly selected patients' charts meeting the inclusion criteria. The mean age for the collective sample was 55.9 years old (SD=17.3), and over half (59.7%; see Table 1) were female. The majority of the population was Caucasian (55.3%), followed by African-American (43.3%). The largest portion of admissions went to a TCU level of care (35.3%) and MS (35.3%), followed by ICU (16.7%). The use of restraints among the sample was low (5.3%). The median length of hospital stay in days was 5 days, (1-214 days). Among the 50 patients who were identified as having been in the ICU the median number of days in ICU was 3 days (1-32). Mortality was high (16.0%) among the sample population. Only 1 patient was identified as not being screened for alcohol use (eliminating it as a group for comparison within the study), a majority of the sample was screened negative for alcohol use (73.3%), followed by those who screened positive for alcohol use (26.3%).

Alcohol Use Screening Adherence

For the collective study sample the adherence rate to the alcohol use screening documentation was high, at 99.7%; finding that only one patient was not screened at admission. Approximately one quarter (26.3%) of screened patients yielded a positive result.

Patient Demographics

The patient demographics collected during this study were age, ethnicity, and gender. There were no statistical differences found in ethnicity, or age, between those who screened positive and those who screened negative for alcohol use.

For gender, it was broken into male and female. For the overall study population the majority of patients were female (59.7%). For those who screened positive for alcohol use approximately a third were male (33.9%). There was statistical significance ($p=.016$) that males were more likely to screen positive for alcohol use, as was concurrent with the literature.

Correlations to outcomes

The following outcome variables were collected in this study: level of care at admission, length of stay, number of ICU days, use of restraints and length of use, if there was a diagnosis of AWS/DTs, if the CIWA protocol for withdrawal treatment was activated, and mortality. For the overall study population 50 patients (16.7%) were admitted to the ICU, 144 patients (48%) were admitted to the TCU, and 106 patients (35.3%) were admitted to the MS units. For those who screened positive for alcohol use 16 (20.3%) went to the ICU, 29 (36.7%) went to the TCU, and 34 (43%) went to MS units. For those who screened negative for alcohol use 34 (15.5%) went to the ICU, 115 (52.3%) went to the TCU, and 71 (32.3%) went to the MS units. There was no statistically significant difference ($p=.113$) for the level of care at admission between those who screened positive and those who screened negative for alcohol use.

The median length of stay (LOS) for the study population was five days, with a minimum of one day and the maximum of 214 days. For those who screened positive for alcohol use the median LOS was four days, with a minimum of one day, and a maximum of 61 days. For those that screened negative the median LOS was five days, with a minimum of one day, and a

maximum of 214 days. Using the Mann-Whitney U test it was determined that there was no significant differences in the two groups ($p=.975$).

The number of ICU days for the study population was a median of three days, with a minimum of one day, and a maximum of 32 days. For patients who screened positive for alcohol use the number of ICU days was a median of two days, with a minimum of one day, and a maximum of 16 days. For those who screened negative for alcohol use the median number of ICU days was three days, with a minimum of one day, and a maximum of 32 days. No statistically significant differences were found between the two groups.

Restraints were used in 16 patients, 5.3% out of the overall study population. Of those who screened positive for alcohol use there were six patients (7.6%) who were placed in restraints, for a median of two days. Restraints were used in 10 patients (4.5%), who screened negative for a median of two days. There was no statistically significant difference in the use of restraints between the two groups ($p=.380$).

There were 13 patients (4.3%) with an actual diagnosis of AWS or DTs, all of whom screened positive for alcohol use, and were treated with the CIWA protocol. Only one patient who screened negative for alcohol use at admission, was found to actually need treatment for alcohol withdrawal and was treated with the CIWA protocol within the sample, making a total of 14 patients (4.7%) treated for AWS within the study sample population.

Mortality in the overall study population was shown to be 16.0% (48 patients). Those who screened positive for alcohol use four patients (5.1%) were deceased at the end of the hospital admission. For those that screened negative for alcohol use 44 patients (20.0%) were found to be deceased at the end of hospital admission. There was a significant correlation

($p=.002$) between screening negative for alcohol use and mortality, opposite of the current literature.

Discussion

This study sought to determine adherence rates for alcohol use screening documentation on patients admitted to Norton Hospital's downtown campus via the emergency department. In addition it sought to measure subject demographics (age, gender and ethnicity), and measure outcomes including hospital length of stay, number of ICU days, use of restraints and length of use, incidence of AWS/DTs, level of care at admission, incidence of activation of the CIWA protocol, and mortality, among the study population. An in-group comparison between those who screened negative for alcohol use, those who screened positive for alcohol use and, those who were not screened, was done to determine any associations of outcomes to a particular group. The results showed that only one person was not screened for alcohol use making that group obsolete for comparison.

Alcohol Use Screening Documentation Adherence

The rate of adherence to the alcohol use screening documentation within the admission history was 99.7%. There is a selectable response of yes, no, or not asked, in which the nursing staff or care treatment team is able to document. This result is very high, showing consistent adherence, with no need for a performance improvement intervention. Further expansion of the study population to all methods of admission, not just those from the ED, may yield different results, and could be examined in another study. Expansion into the primary care setting as well could help provide insight to the consistency across the entire healthcare continuum and Norton Healthcare system.

Alcohol Withdrawal Syndrome Incidence

With adherence to the alcohol use screening at nearly 100%, the hospital was able to capture 79 patients (26.3%), within the study population who were at risk for developing AWS/DTs. This aligns closely with the national average of nearly 30% of the inpatient population (Ungur et al., 2013). In addition 14 patients (16.3%) were determined to need treatment for withdrawal symptoms using the CIWA protocol. This shows that with high adherence to screening for alcohol use the treatment team is able to use that information to provide the earliest, and best care using the CIWA protocol when indicated, producing the best possible outcomes for patients (Rubinsky et al., 2013; Melson, et al., 2014).

Patient Demographics

Those patients in the study sample population who screened positive for alcohol use were statistically younger at 49.8 years ($p < .001$), compared to those that screened negative (58.2 years) and the overall population (55.9 years). This seems to be appropriate and expected, as younger people consume more alcohol, and more regularly, (Burns, 2015).

There was also evidence that males are more likely to screen positive for alcohol use than females ($p = .016$), which is consistent with the literature reviewed, that males tend to participate in riskier behaviors (Ungar, et al., 2013).

No relationship was found between ethnicity and results of the alcohol use screening in this study ($p = .479$). All patients who screened positive for alcohol use were either Caucasian (55.7%) or African-American (44.3%) in this study. As alcohol misuse is found in all people regardless of ethnicity, this finding aligns with other research (Ungar, et al., 2013).

In conclusion those patients who screened positive for alcohol use in this study were males of approximately 50 years of age, and nearly equally distributed among ethnicities.

Length of Stay/ICU days

In this study it was surprisingly found that those who screened positive for alcohol use had a shorter length of stay, at four days, compared to five days for those who screened negative. Though not statistically significant, it is clinically significant and this difference may be due in part to the population's method of admission (via the ED), and the patients' other medical conditions and primary diagnoses. Another factor that could have influenced the data was that all 13 patients identified for treatment with the CIWA protocol, screened positive for alcohol use and treated appropriately, potentially decreasing sequelae from withdrawal and potentiating a shorter length of stay. Future studies could examine this more closely.

There was found to be no significant difference between a patients' positive or negative screening for alcohol use and the number of days they spent in the ICU. For those who screened positive there was a median of two ICU days, and for those who screened negative there was a median of three ICU days. This slight difference may be due to patients being treated with the CIWA protocol when withdrawal was identified, to reduce escalation of care or time needed in the ICU. This too could be examined more closely in a future study.

Restraint Use Incidence

Although there was a slightly higher incidence of restraint use in those patients who screened positive for alcohol use (7.6%) compared to, those who screened negative (4.5%), there was no statistically significant difference ($p = .550$) between the two groups. This could be due to a low incidence of restraint use within the overall group, with only 16 patients (5.3%) having been placed in restraints. Reasoning for placement of restraints could be examined in future studies to determine if it was due to sequelae of withdrawal, such as delirium or agitation.

Mortality

Surprisingly, there was a 16% mortality rate among the overall study population, and an equally shocking finding of a significantly lower mortality rate among those who screened positive for alcohol use compared to the overall population and to those who screened negative for alcohol use ($p = .002$). Those who screened positive for alcohol use had a 5.1% mortality rate, with only four patients found to be deceased at the end of the hospital admission. Those who screened negative for alcohol use had a 20.0% mortality rate, with 44 patients found to be deceased at the end of the hospital admission. There are several factors that may be skewing the data in this unexpected direction. One factor may be the population itself, as most people admitted to the hospital from the ED often have more life-threatening diagnoses or substantial illnesses, than alcohol use or withdrawal. Another factor that may have skewed the data is the high adherence rate to the alcohol use screening and use of treatment with the CIWA protocol, which could have decreased the severity of sequelae from withdrawal and reduced the incidence of life-threatening complications.

Limitations

There were several limitations identified in the design of this study. The first one is the study's population being limited to admissions from the ED. Looking at only the ED could have affected the results of this study in multiple ways, such as the adherence to screening for alcohol use. It is possible that this particular department is more stringent in documenting this portion of the admission history, compared to other departments within the hospital. Mortality and length of stay, including number of ICU days could have been affected by only using admissions from the ED. Many people who are seen, treated, and admitted by way of the ED have significant or life-threatening injuries or medical problems, leading to higher rates of death and length of stay,

compared to other patients. Post-elective surgery patients, for example, have an expected length of stay and discharge plan. Patients admitted from the ED may not have this.

Another limitation of this study was, using only one of the Norton Healthcare hospitals that serve this community. Different results may be obtained by using more than one site, as the other facilities serve patients with some of the same demographics. Future research could compare between the facilities to ensure that adherence to the screening process for alcohol use and treatment with the CIWA protocol is similar across the Norton Healthcare system.

Recommendations for Future Studies and Next Steps

The results of this study suggest several opportunities for further research into screening for alcohol use at admission. It may be helpful to expand the sample population to all methods of admission, not just via the ED. This would allow a broader look at the population that Norton Hospital (downtown campus) serves. This could be taken further to include the other Norton Healthcare facilities, including the primary and immediate care facilities, to ensure system wide consistency with documentation for alcohol use as well as treatment with the CIWA protocol for withdrawal, in the hospital setting. Further investigation of the use of the CIWA protocol could also include the time frame of alcohol use screening at hospital admission, to the time of activation of the protocol. This could assist with determining how closely these two variables are correlated.

As well as determining that screening for alcohol use is not just being done within a hospital admission, and is being monitored and documented within the primary care arena as well. Many of the patients seen as inpatients access care outside of the hospital itself. The records of those patients that seek care within the Norton Healthcare system, either in the hospital, primary care or immediate care setting, are accessible to any provider that sees them

within the Norton Healthcare system. Allowing ease of follow-up and ability for full review of all care provided. As screening is a primary healthcare intervention it should also be done prior to a stressor such as a hospital admission.

A more in depth investigation into some of the variables such as mortality, length of stay, number of ICU days, and restraint use may be helpful in determining a trend, and/or reasoning why some of the results of this study were not as expected. For example, why there was lower mortality within the group that screened positive for alcohol use. This could be done by collecting data regarding admitting diagnoses and past medical history to determine the comorbidity burden. As well as socioeconomic characteristics, that may impact mortality.

There may also be value in expanding this study to include screening for substance abuse to determine if there are correlations between alcohol use and substance abuse, and if we are treating this population with the best evidence based care as well. This is especially relevant as the number of opioid related deaths and complications continue to rise in this area of the country. Gathering this data as well could give us as healthcare providers a better insight to the full spectrum of the underlying problems our patients face. To ensure that we are not just treating one problem such as alcohol withdrawal, when there are other problems that need to be addressed in addition, such as opioid misuse and withdrawal, that often complicate treatment plans. This data can also help to determine the extent of the problems in this community and provide information about the demands of the community, so that we can help those in need, and find out how the Norton Healthcare system can provide these services.

Conclusion

The aim of this study was to measure adherence rates to the current alcohol use screening process and identify outcomes of patients admitted to Norton Hospital via the emergency

department. In addition, to identify subject demographics (age, ethnicity, and gender), length of stay, number of ICU days, incidence of restraint use and number of days used, mortality, incidence of AWS/DTs, and activation of the CIWA protocol.

In-group comparisons of subject demographics (age, ethnicity, gender), length of stay, number of ICU days, restraint use days, mortality, level of care at admission (ICU, TCU, LLM/tele, or MS), incidence of AWS/DTs, and activation of the CIWA protocol, among adult patients who screened positive for alcohol use, patients who screened negative for alcohol use, and those patients who were not screened for alcohol use upon admission determined that those who will screen positive for alcohol use are males, with a median age of 49.8 years old. It was also identified that the adherence rate for screening for alcohol use was nearly 100%, within the study's sample population. Surprisingly it was identified that those who screened positive for alcohol use had a lower mortality rate, and should be examined more in depth in the future. As well as a more comprehensive dissection of the results regarding length of stay, number of ICU days, and the use of restraints, as none of these results were found to have statistically significant differences among those that screened negative and positive for alcohol use.

This study has laid the ground work for future studies about alcohol use screening, and providing the best evidence-based care to the population served at Norton Hospital's downtown campus.

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Table 1. Descriptive summary of ED patients (N=300)

| Variable | Mean (SD); median (range); n (%) |
|---------------------------------|---|
| Age | 55.9 years (17.3) |
| Gender | |
| Male | 121 (40.3%) |
| Female | 179 (59.7%) |
| Race/Ethnicity | |
| White | 166 (55.3%) |
| African American | 130 (43.3%) |
| Other | 4 (1.3%) |
| Level of care | |
| ICU | 50 (16.7%) |
| TCU | 144 (35.3%) |
| MS | 106 (35.3%) |
| Restraints | |
| Yes | 16 (5.3%) |
| No | 284 (94.7%) |
| Length of hospital stay in days | 5 (1-214) |
| Number of ICU days | 3 (1-32) |
| Mortality | |
| Deceased | 48 (16.0%) |
| Alive | 252 (84.0%) |
| Alcohol screening | |
| Positive | 79 (26.3%) |
| Negative | 220 (73.3%) |
| Not screened | 1 (0.3%) |
| Diagnosis of AWS | 13 (4.3%) |
| Diagnosis of DTs | 1 (0.3%) |
| CIWA protocol activated | |
| Yes | 14 (4.7%) |

Table 2. Associations between Demographic Variables, Patient Outcomes, and Alcohol Use Screening (n=299)

| | Screening positive (n=79) Mean (SD) or n (%) | Screened negative (n=220) Mean (SD) or n (%) | p |
|------------------------------------|---|---|----------|
| Age | 49.8 years (14.5) | 58.2 years (17.8) | <.001 |
| Gender | | | |
| Male | 41 (33.9%) | 80 (66.1%) | .016 |
| Female | 38 (28.3%) | 140 (78.7%) | |
| Race | | | |
| White | 44 (55.7%) | 122 (55.5%) | .479 |
| African-American | 35 (44.3%) | 94 (42.7%) | |
| Other | 0 (0) | 4 (1.8%) | |
| Level of Care | | | |
| ICU | 16 (20.3%) | 34 (15.5%) | .113 |
| TCU | 29(36.7%) | 115 (52.3%) | |
| MS | 34 (43.0%) | 71 (32.3%) | |
| Restraints | | | |
| Yes | 6 (7.6%) | 10 (4.5%) | .302 |
| No | 73 (92.4%) | 210 (95.5%) | |
| Length of Hospital Stay in Days | 4 (1-61) | 5 (1-214) | .975 |
| Number of ICU days | 2 (1-16) | 3 (1-32) | .994 |
| Mortality | | | |
| Deceased | 4 (5.1%) | 44 (20.0%) | .002 |
| Alive | 75 (94.9%) | 176 (80.0%) | |

Table 3: Hospital Adherence to Alcohol Use Screening

| Variable | Admission level of care ICU (n=50) | Admission level of care TCU (n=144) | Admission level of care MS (n=106) |
|--|---|--|---|
| Hospital screening Adherence | | | |
| 0-20%=0 | | | |
| 21-40%=1 | | | |
| 41-60%=2 | | | |
| 61-80%=3 | | | |
| 81-100%=4 | X | X | X |
| | | | |
| Actual % | 100% | 100% | 99.1% |
| | 50/50 | 144/144 | 105/106 |
| | | | |
| | | | |
| Overall hospital adherence rate (not level of care separated) (n=300) | | | |
| % of screening done | 99.7% 299/300 | | |

Appendix A Data Collection Tool for Patient Information

| Variable | Patient 1A | Patient 1B | Patient 1C | Patient 1D |
|-----------------------------------|------------|------------|------------|------------|
| Age | | | | |
| Actual age | | | | |
| Sex | | | | |
| Male=0 | | | | |
| Female=1 | | | | |
| Ethnicity | | | | |
| White=1 | | | | |
| African-American=2 | | | | |
| Other/unknown=3 | | | | |
| Alcohol use | | | | |
| Yes=0 | | | | |
| No=1 | | | | |
| Not documented=2 | | | | |
| Length of Stay (days) | | | | |
| Actual number of days | | | | |
| CIWA protocol activated | | | | |
| Yes=0 | | | | |
| No=1 | | | | |
| Number ICU days | | | | |
| Actual # of days (if applicable) | | | | |
| Restraints | | | | |
| Yes=0 | | | | |
| No=1 | | | | |
| # of days used | | | | |
| | | | | |
| Diagnosis of AWS | | | | |
| Yes=0 | | | | |
| No=1 | | | | |
| Diagnosis of DTs | | | | |
| Yes=0 | | | | |
| No=1 | | | | |
| Mortality | | | | |
| Deceased=0 | | | | |
| Alive=1 | | | | |
| | | | | |
| Level of care at admission | | | | |
| ICU=0 | | | | |
| TCU=1 | | | | |
| MMS=2 | | | | |
| MS=3 | | | | |

Appendix B

Alcohol Withdrawal Assessment Scoring Guidelines (CIWA - Ar)

Nausea/Vomiting - Rate on scale 0 - 7

- 0 - None
 1 - Mild nausea with no vomiting
 2
 3
 4 - Intermittent nausea
 5
 6
 7 - Constant nausea and frequent dry heaves and vomiting

Tremors - have patient extend arms & spread fingers. Rate on scale 0 - 7.

- 0 - No tremor
 1 - Not visible, but can be felt fingertip to fingertip
 2
 3
 4 - Moderate, with patient's arms extended
 5
 6
 7 - severe, even w/ arms not extended

Anxiety - Rate on scale 0 -

- 7
 0 - no anxiety, patient at ease
 1 - mildly anxious
 2
 3
 4 - moderately anxious or guarded, so anxiety is inferred
 5

Agitation - Rate on scale 0

- 7
 0 - normal activity
 1 - somewhat normal activity
 2
 3
 4 - moderately fidgety and restless
 5

Paroxysmal Sweats - Rate on Scale 0 - 7.

- 0 - no sweats
 1 - barely perceptible sweating, palms moist
 2
 3
 4 - beads of sweat obvious on forehead
 5

Orientation and clouding of sensorium - Ask, "What day is this? Where are you? Who am I?" Rate scale 0 - 4

- 0 - Oriented
 1 - cannot do serial additions or is uncertain about date
 2 - disoriented to date by no more than 2 calendar days
 3 - disoriented to date by more

Tactile disturbances - Ask, "Have you experienced any itching, pins & needles sensation, burning or numbness, or a feeling of bugs crawling on or under your skin?"

- 0 - none
 1 - very mild itching, pins & needles, burning, or numbness
 2 - mild itching, pins & needles, burning, or numbness
 3 - moderate itching, pins & needles, burning, or numbness
 4 - moderate hallucinations

Auditory Disturbances - Ask, "Are you more aware of sounds around you? Are they harsh? Do they startle you? Do you hear anything that disturbs you or that you know isn't there?"

- 0 - not present
 1 - Very mild harshness or ability to startle
 2 - mild harshness or ability to startle
 3 - moderate harshness or ability to startle
 4 - moderate hallucinations

Visual disturbances - Ask, "Does the light appear to be too bright? Is its color different than normal? Does it hurt your eyes? Are you seeing anything that disturbs you or that you know isn't there?"

- 0 - not present
 1 - very mild sensitivity
 2 - mild sensitivity
 3 - moderate sensitivity
 4 - moderate

Headache - Ask, "Does your head feel different than usual? Does it feel like there is a band around your head?" Do not rate dizziness or lightheadedness.

- 0 - not present
 1 - very mild
 2 - mild
 3 - moderate
 4 - moderately

Procedure:

1. Assess and rate each of the 10 criteria of the CIWA scale. Each criterion is rated on a scale from 0 to 7, except for "Orientation and clouding of sensorium" which is rated on scale 0 to 4. Add up the scores for all ten criteria. This is the total CIWA-Ar score for the patient at that time. Prophylactic medication should be started for any patient with a total CIWA-Ar score of 8 or greater (ie. start on withdrawal medication). If started on scheduled medication, additional PRN medication should be given for a total CIWA-Ar score of 15 or greater.
2. Document vitals and CIWA-Ar assessment on the Withdrawal Assessment Sheet. Document administration of PRN medications on the assessment sheet as well.
3. The CIWA-Ar scale is the most sensitive tool for assessment of the patient experiencing alcohol withdrawal. Nursing assessment is vitally important. Early intervention for CIWA-Ar score of 8 or greater provides the best means to prevent the progression of withdrawal.

| | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Assessment of response (CIWA-Ar score 30-60 minutes after medication administered) | | | | | | | | | | | | | |
| RN Initials | | | | | | | | | | | | | |

| | |
|---|--|
| <p>Scale for Scoring: Total Score = 0 – 9: absent or minimal withdrawal 10 – 19: mild to moderate withdrawal more than 20: severe withdrawal</p> | <p>Indications for PRN medication: a. Total CIWA-AR score 8 or higher if ordered PRN only (Symptom-triggered method). b. Total CIWA-Ar score 15 or higher if on Scheduled medication. (Scheduled + prn method) <u>Consider transfer to ICU for any of the following:</u> Total score above 35, q1h assess. x more than 8hrs required, more than 4 mg/hr lorazepam x 3hr or 20 mg/hr diazepam x 3hr required, or resp.distress.</p> |
|---|--|

Patient Identification (Addressograph)

| Signature/ Title | Initials | Signature / Title | Initials |
|------------------|----------|-------------------|----------|
| | | | |
| | | | |
| | | | |
| | | | |

Alcohol Withdrawal Assessment Flowsheet (revised Nov 2003)