

Alcohol and Drug Abuse Treatment: Quality Assurance Issues & Methods

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Read the Fine Manual

This monograph is intended as a basic introduction to issues and methods in quality assurance in the field of alcohol and drug abuse medicine. It is focused specifically on methods of performing quality assurance in inpatient treatment units, either free-standing or hospital-based. Our discussion of many medical issues in this text is therefore general in nature. This book is not intended as a treatment manual for alcohol withdrawal syndrome (AWS). We have written a full-length AWS treatment manual, which is available at <http://www.sagetalk.com>.

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1 Quality Assurance and Utilization Review

In our experience with hospital-based detoxification facilities or facilities located outside of acute-care centers, the ongoing work of quality assurance in hospital-based detoxification clinics falls on nursing staff. Usually, individuals are identified to perform both quality assurance and utilization review.

Utilization review is done on a case-by-case basis, and the focus tends to be on providing the best care possible, which also has the very desirable side-effect of reducing the patient's length-of-stay (LOS) by tracking the individual patient's progress through the health delivery system. Due to economic pressures, many patients will have their charts reviewed on a day-to-day basis. The appropriate level of care for each patient is determined by taking into account the patient's history, his or her physical, psychological, and social conditions, and response to treatment.

Unit-wide quality assurance (QA) can be considered a specialized type of utilization review applied to a large number of patients. Because this type of review is applied to a group, we need to use statistical methods to consider questions regarding quality of care. Although clinical staff can easily perform case-by-case review, statistical analysis of large bodies of patient data requires specialized mathematical training. As a practical matter, it is usually not feasible to add data analysis to the already long list of tasks performed by nurses and nurse managers.

Properly compiled and interpreted statistical information, however, can be extraordinarily helpful in improving delivery of care. A good quality assurance program can help identify weak points in patient care, and suggest where efforts can be made to improve unit performance and enhance patient outcomes. QA is thus critical to the operation of any inpatient drug or alcohol treatment unit. Sub-optimal patient care not only harms the patient, but also results in an increase in health resources utilization, which has an adverse economic impact on the organization. Legal liability issues resulting from sub-optimal patient care also have economic as well as ethical repercussions.

As described below, quality assurance is not merely a matter of reacting to crises. If done properly, QA involves collecting a variety of information related to quality of patient care and analyzing the data to pinpoint problem areas. This information is then presented to care givers and clinicians. The organization as a whole can then both learn from the problems of the past and respond proactively to prevent similar problems in the future.

1.1 Setting Up a Quality Assurance System

At the highest level, there are two major tasks in setting up a QA system. First, you should establish norms for the QA indicators you choose to track. Second, you should decide which cases (for example transfers to an ICU) call for an automatic review. These are known as "index cases" (for a suggested list of index cases, see Table 2 on page 3).

The discussion below describes how a unit would set up a QA system "from scratch," but will be useful to review if you are in charge of improving or evaluating an existing system.

1.2 Choosing Indicators and Establishing Norms

As we just said, the first task in setting up a QA system is to define a list of QA indicators and to begin gathering and tabulating data on these variables. A suggested list of parameters appears in "Table 1: AWS Quality Assurance Indicators" below.

Over time, collecting and analyzing QA data allows norms to be established for the unit. Normative data answers the question "What is the usual outcome for this indicator over a period of time or number of patients?" For example, how many AMA discharges should we expect to see per 1,000 admissions?

Establishing this baseline will allow clinicians and medical managers to focus attention on atypical occurrences which may signal a problem with patient management. In QA language, such cases are called outliers. Establishing norms for a unit is vital because, in plain language, if you don't know what is typical it is hard to recognize what is atypical. This in turn makes it difficult to recognize significant deviations from standard practice.

A common example of an outlier would be a long length of stay when compared to the average length of stay for all patients on the unit. This would prompt a case review to examine whether conditions resulting in a prolonged length of stay could have been prevented.

1.2.1 Suggested Quality Assurance Indicators

The following is a list of quality assurance indicators which are useful in the management of an inpatient substance abuse unit. They are not all specific for alcohol withdrawal treatment, but include indicators such as alcohol-related seizures which are specific for alcohol abusing patients.

Table 1: AWS Quality Assurance Indicators

AWS Quality Assurance Indicators
Number of elopements (leaving unit without the knowledge of clinical staff)
Number of patients leaving against medical advice (AMA)
Number of patients requiring use of physical restraints
Total time per patient physical restraints are used
Number of incidents of patient-on-patient or patient-on-staff violence
Number of transfers to an intensive care unit or other facility
Number of patients requiring bedside cardiopulmonary resuscitation
Number of patients with alcohol-related seizures
Number of patients with more than one alcohol-related seizure per inpatient stay
Number of falls
Average length of stay per patient

AWS Quality Assurance Indicators

How many times over the past year or past six months the patient has been admitted to a treatment facility for detoxification.

There are also some additional indicators we suggest tracking in more sophisticated ways, especially if you have some suspicions that they may be a problem area. In the case of elopements, it may be useful to examine the time of day and day of week when elopement is identified. For example: are more elopements happening on weekends than weekdays, or on night shifts compared to day shifts? We also suggest tracking the time of day and day of week for AMA discharges.

It may also be useful to track the number of all index cases the point of entry into the care system. Points of entry might include voluntary admission, emergency room, court mandate, family intervention, and crisis intervention.

If some of these indicators seem like more work than you can handle right now, or not relevant to the setting you are working in, do what makes sense for you and your institution. A solid QA program that is not "perfect" is much better than a poor or nonexistent one.

1.2.2 Defining Index Cases

The second task in initiating a QA program is defining a list of "red flags" which automatically lead to a case review. In QA terminology, these events are known as "index cases." Typical index cases might include elopements, AMA discharges, or emergency transfers to an intensive care unit; a suggested list of index cases appears below (see "Table 2: Index Cases" below). There will be a large overlap between your list of indicators and your list of index cases, and your indicators and index cases may be different from those on our list.

The question to ask yourself, before making something an index case rather than just a QA indicator, is whether something is serious enough to warrant the effort of reviewing every single case involved.

1.2.3 Suggested Index Cases

Table 2: Index Cases

Index Cases for Chart Reviews
Elopements
AMA discharges
Any patient who required physical restraints for longer than 1 hour
Any patient involved in patient-on-patient or patient-on-staff violence
Any patient involved in a transfer to an intensive care unit
Any patient requiring bedside cardio-pulmonary resuscitation
Patients whose length of stay is greater than three standard deviations from the mean derived from at least 500 data cases.
Any patient with more than one alcohol-related seizure per inpatient stay

Index Cases for Chart Reviews

Any patient over the age of 50 experiencing alcohol-withdrawal delirium

Transfer out of unit or out of facility.

1.2.4 Anticipating a Couple of Questions

A couple of questions may be occurring to you at this point:

"If we're going to review every index case, why bother to make something a QA indicator **and** an index case?"

Why not just review all cases in which a QA indicator occurs?

The answer to the first question is that even if you are reviewing, for example, every case in which an AMA discharge occurred, it is still worth looking for patterns of AMA discharges that may indicate systemic problems with care during a particular time period.

For example, imagine a hypothetical setting where exactly 1 AMA discharge happened every month. If during the month of May there were 6 AMA discharges, you would not only want to perform your regular review, but also review care during the month of May to determine what problems with care may have contributed to the unusual number of AMA discharges during that month.

The reason it is not worth reviewing every case in which a QA indicator takes place is that "stuff happens." Even in the best settings, treating acutely ill patients is difficult, and inevitably adverse events will happen. What your QA program should focus on is not "normal" adverse events, but on patterns in adverse events which indicate problems with care. Reviewing every case in which an indicator appears will likely antagonize staff and will waste your time and effort.

1.2.5 Collecting and Analyzing the Data

Once you choose your QA indicators and index cases, the data needs to be collected, tabulated, analyzed and presented in such a way that outcome measures can be used to focus attention on problem areas. We will focus on this process in the next chapter, "Collecting and Analyzing QA Data," starting on page 5.

1.3 Presenting QA Data to Staff Members

It is recommended that a meeting of all clinical staff occur at least once per month where quality assurance indicators are reviewed, problem cases are presented, and staff has the opportunity to comment and make suggestions as to how any problems can be corrected in the future. When problem cases are identified it is helpful to present the data to all clinical staff, since these cases can serve as learning tools, and can help make the reasons for policy changes understandable to all staff.

Since some staff may have participated in the problem cases chosen for review, it is important that the tone of these meetings is managed so that staff members are not put on the defensive. This is especially important because most patterns of problem cases are due to systemic factors. If QA meetings become a "blame game," clinical staff will have a hard time engaging in constructive criticisms. Such meetings may

actually reduce treatment quality by obscuring systemic problems and reducing staff morale.

The primary purpose of presenting problem cases is educational; cases should be presented in such a way that they serve a didactic purpose, allowing staff to learn from mistakes while focusing on ways to improve delivery of care.

In some cases, QA analysis may suggest a problem with particular staff members. A variety of approaches are required depending on the level of training of the staff member and the seriousness of the mistake as it relates to the patient's care. If a particular physician appears to be involved, the case(s) should be discussed with him or her after the cases have been referred to a peer reviewer, who should also be present during the intervention. Such peer reviewers might be other physicians who care for patients in the particular setting. In some cases, a peer reviewer might be a physician who holds similar responsibilities in a similar program or who has been identified as having expert knowledge in the field and is available on a consultative basis.

The physician who is having his or her cases reviewed should be given information as to what cases are to be considered and what patient care questions may have been brought up by the peer reviewer so that they can be prepared to answer particular questions which may arise during the case review. The logistics of setting up this kind of peer review and intervention will of course vary between programs and specific policies may need to be formulated to handle patient confidentiality, physician confidentiality, and consequences for failure to improve care.

If the staff member is functioning at a nursing level, a similar procedure should be followed, except that in these cases, it usually is within the scope of the nurse manager in charge of the unit to discuss the issues with the staff member. Again, confidentiality issues need to be addressed both to protect the patient and the staff member and this may require particular policies to be put into place.

If the staff member who was directly responsible for the management of the patient is a nurse practitioner or a physician assistant, the cases should first be discussed with the staff member as well as with the physician under whose authority the staff member is practicing. It may become evident that the staff member may have been acting on physician's orders, in which case, a physician peer-review as noted above might be indicated.

Sometimes a case review reveals significant deviation from accepted procedures by a member of the treatment team who is not directly responsible for patient care, or clinical staff rotating on the unit on a per diem basis. This category would include counselors, nursing assistants, social workers and psychologists. The case should be discussed with the physician, direct-care provider such as physician assistant or nurse practitioner if applicable and with the staff member or members involved.

2 Collecting and Analyzing QA Data

Unless you are a rare person, crunching numbers is probably not your favorite activity. And it is possible to positively affect the quality of care without doing so. However, your QA efforts will be more effective and credible if you can use data both to communicate to your staff and to decide where to concentrate your efforts.

If you will stick with us for a bit, we will convince you that analyzing QA data is not really all that difficult. Since Dr. DePetrillo eats statistics for breakfast, the task of writing this section was assigned to Mr. McDonough (with editing and help from the good doctor) under the theory that the worst person to explain math to someone is a person who thinks it's all perfectly straightforward and easy. If your mathematical abilities are well beyond mine (which is not unlikely), please try not to wince at my "baby steps" instructions.

2.1 Three Questions

Once you have chosen your QA indicators, you want to answer three questions about each indicator:

1. On average, how often does this happen in our facility? (per patient admission)
2. During the time period we are looking at, is it happening more often than normal?
3. If it is happening more often than normal, is that due to chance, or has something gone wrong with care?

The first two questions could be worked out with paper and pencil, if you had enough pencils and enough paper. With a spreadsheet program, they are a snap – nothing more than basic math. To answer the third question you will need to apply statistics and use statistical analysis software.

Our advice? If you don't have the resources or the training to do statistics, answer the first two questions – don't let the best be the enemy of the good. The place it will cost you will be on close calls – if you expect 3.5 AMA discharges, for example, and see 5, you won't be able to say for sure whether it was due to bad care or bad luck.

2.2 Two Tasks

Once you have chosen your QA indicators, there are two tasks involved in analyzing data:

1. Establishing norms for your unit (for example, for a given number of patients, how many AMA discharges should you expect to occur?).
2. Using these norms to find specific periods in which the observed number of events greatly exceeds the expected number of events (for example, in the first week of January, we would have expected 1 AMA discharge, but observed 3).

2.3 Establishing Norms

To calculate norms, it is necessary to compile historical data for your unit for each indicator. We recommend examining at least one year of historical data to establish reliable norms.

In our illustration (see Figure 1 below), we have chosen monthly intervals. To the right of each month is a column with the number of AMA discharges in that month. The last column contains the total number of admissions in that month.

Month Number	#AMA/ Month	Total number of Admissions
1	2	44
2	3	35
3	2	37
4	1	40
5	2	38
6	2	22
7	3	25
8	0	20
9	2	39
10	1	40
11	0	45
12	3	48

Figure 1: Example of Data Collection

To get the normal rate for each indicator, you simply add the total number of AMA discharges and divide it by the total number of admissions. In Figure 1, the total number of AMA discharges is 21 and the total number of admissions is 433. The normal rate is $21/433$ or 0.048 (and yes, I used a spreadsheet to figure that out).

Once you have the normal rate, you can easily determine how many AMA discharges you would expect for a given number of patients. For example, if there were 113 patient admissions in a given time period, you would expect to see 113 times .048 AMA discharges, or 4.6.

So speaking loosely, if you see 4 or 5 AMA discharges in that case that's "about normal." If you see fewer, that's probably good. If you see more, that's probably bad. And if you see exactly 4.6, you have very unusual patients. As we said, where you'll need to do some serious math is if you want to sort out the close calls: How good is 3? How bad is 6?

Just as an aside, there's a reason we aren't calculating the average number of AMA discharges per month. In Figure 1, you'll notice that one month has only 20 admissions

and another has 48, almost two and a half times as many. If we tried to come up with an average per month, it would be thrown off by the huge variation in the number of patients. Regardless of whether you want to record data by the month, by the week, or by some other period, once you have the normal rate per patient, your question is always the same: during this period, how many patients were there?

Once you're done with the first QA indicator, you repeat the same process for the remaining indicators, establishing a normal rate for each one. Now you are ready to go look for problems.

2.4 Looking for Problems

Once you have your normal rates, you can look at any indicator and see whether the number of indicators for a given time period exceeds the norm. This can be done quite easily in a spreadsheet with a simple formula or two (and if you don't have spreadsheet skills, it shouldn't be too hard to find someone to set one up for you – once the formulas are in there, you can just type in the data).

What you want is a spreadsheet something like this:

Month	# Admissions	# AMA	Expected AMA	Variance

The first column is just the name or number of the month (or other period) you are looking at. The second column is the number of admissions during that period. The third is the number of AMA discharges (or other indicator). Only when you get to the fourth column do you need a formula. The expected number is the # Admissions (column 2) times the normal rate. The fifth column is just subtraction: the actual number of AMA (column 3) minus the expected number (column 4).

In common sense terms, what you are looking for is periods during which the actual number exceeds the expected number by a significant amount (a positive number will show up in the "Variance" column. When such a period is identified, the clinical manager would then pull AMA cases for that period and examine them for systemic problems.

2.5 How to Divide Your Data

We've been using months in our examples, but how you choose to divide your data will depend partly on how many patients you see and what you are looking for.

You should choose a period with enough patients in it to have a reasonable expectation of seeing some events. In our example, the normal rate of AMA discharges is about 1 in 20, so it won't do you much good to look at a period with only 5 patients. All you will discover is that most of the time, you have zero AMA discharges, fewer than you expect, and now and then you'll have 1, which will be more than 4 times what you expect. Needless to say if you announce to your staff that the rate of AMA discharges last week was four times the number expected and then reveal that there was only one, they will be puzzled (at best).

How you divide your data will also depend on what you are looking for. If, for example, you have reason to suspect that patients admitted after midnight are not receiving the same standard of care as patients admitted between 8 a.m. and 11:59 p.m., you might want to look at several months' worth of late-night data to make sure you get a big enough sample to draw a reasonable conclusion. "We expected 11 AMA discharges and saw 15" is much more convincing than "We expected 1 AMA discharge and saw 2."

You can also divide your data by other criteria: by type of admission (voluntary admission, emergency room, etc.), by admitting physician, by shift, by day of the week, etc. This can help you discover factors associated with problems in care. In many cases, you will want to run these secondary analyses after your first look has told you there is a problem. It's interesting to know that there were 3 AMA discharges instead of the expected 1 in April, but it's more useful to know that all three of them were admitted via the emergency room, since this may point to a systemic problem with the delivery of care.

2.6 Real Statistics

We've put it off long enough, now we get to the real statistics. In our example just above, we imagined a situation where we expected 11 AMA discharges and saw 15. That doesn't sound good. But how sure are we that it's not good – that those extra 4 AMA discharges weren't simply due to random bad luck? Well, in truth, we don't really know how sure we are.

In the absence of the resources and training to run some basic statistics on our data, we may just have to leave it at that and go with our gut. If we expect 11 and get 12 or 13, probably no big deal. 14 or more, start pulling cases for review. This sort of "seat of the pants" QA analysis is much better than no analysis at all. But wouldn't it be nice to be able to say "we are 95% certain that the high number of AMA discharges for patients admitted after midnight was not due to chance?"

Fortunately, there are ways of drawing this line with a very high degree of certainty. Perhaps unfortunately, doing so involves the use of statistics. You will have to perform a chi-square analysis on your data.

Even more unfortunately, explaining the ins and outs of chi-square analysis is beyond the scope of this document.

Recognizing that most clinical managers have responsibilities that make it difficult (to say the least) to perform statistical processing on QA data, we have considered developing online quality assurance software on our website at <http://www.sagetalk.com>, but in the meantime there are some good online resources, including a good explanation of the chi-square method we use at: http://www.georgetown.edu/faculty/ballc/webtools/web_chi_tut.html and an online chi-square calculator: http://www.georgetown.edu/faculty/ballc/webtools/web_chi.html

If the idea of performing chi-square calculations on your data makes you break out in a cold sweat, we have the following suggestions:

First, you could bug us to finish our software. This may or may not work, depending on how busy we are.

Second, you can look for someone at your hospital or facility who is conversant with statistics and throw yourself on their mercy. Once they set you up with a program and a set of instructions for entering and graphing data, keeping and analyzing statistics on a continuing basis will not be difficult – the tricky bit is setting it up.

And finally, if none of this works for you (at least right now) you can take the easier route, as described above – establish your norms, calculate your expected number of indicators, and look for periods during which the actual number exceeds the expected value.

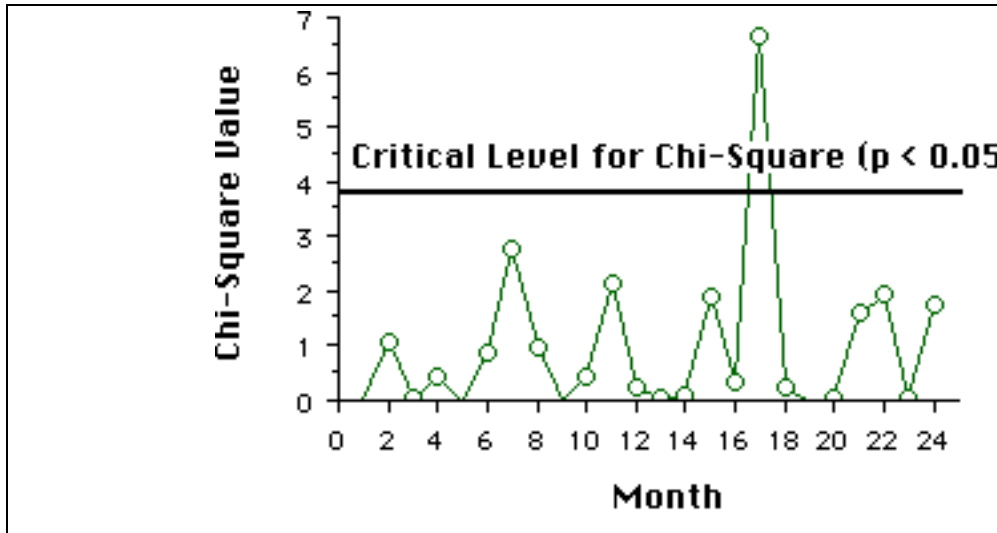


Figure 2: AMA Discharges Chi-Square

Just to tempt you to pursue the issue, Figure 2 shows a graph resulting from a chi-square analysis. We have selected a probability cutoff of 0.05 (or 5 percent). In plain language, this means that for any given peak that goes above the chi-square line on the graph, there is less than a 5 percent chance that the variation is merely due to random chance (or, to put it another way, at least a 95 percent chance that there was some sort of real problem during that month). These peaks (in the case of the graphed data, month 17) are the outliers, the time periods which the clinical manager should focus on.

3 How to Evaluate Specific QA Indicators

In discussing quality indicators, one general structure which can be helpful in dissecting problems is to ask the questions:

- 1) Were there any risk factors for the event that were missed?
- 2) Was the risk of the event increased by the treatment that the patient received or did not receive?

The first question has to do with patient factors which are preexisting or have developed without involvement of clinicians.

The second question has to do with actions or omissions by clinicians which have increased the risk of the adverse event.

In many cases, there is an interplay between these two questions, i.e.: a patient was treated with X drug which caused adverse event Y because the presence of condition Z was not known. Nevertheless, the structure is helpful because it tends to help clinicians isolate systematic problems, which may have to do with incomplete data bases on patients, inadequate training in patient management, or combinations of these two general problems.

3.1 Patient Elopements

Patient elopements can pose a severe risk for the patient. If a patient leaves with impaired judgement, they may also pose a risk to the public at large.

3.1.1 Elopement -- Risk Factors

Elopements can usually be prevented, since patients prone to elopement usually have associated risk factors that can be recognized in advance by the clinician. One common risk factor is intoxication. Other risk factors include the following:

Patients who have blood alcohol levels > 100 mg%.

Patients who appear to be under the influence of a sedative-hypnotic with severe ataxia, dysarthria, and disinhibited behavior.

Patients who have underlying alcoholic or other type dementia, memory disorders, and/or history of severe head injuries may all exhibit impulsive behavior such as elopement, especially when under the influence of alcohol or other sedative-hypnotic drug.

A patient who begins to exhibit loud, boisterous, and disinhibited behavior during early AWS.

A history of leaving treatment facilities either AMA or eloping.

Medical and/or psychiatric conditions which decrease cognitive function may supervene during the period of detoxification and lead to impulsive behavior and/or elopement. These include: hepatic encephalopathy, hypoxemia, the emergence of psychosis, over-medication with sedative-hypnotics, and post-ictal states after alcohol-related seizures.

3.1.2 Elopement -- Prevention

Patients with one or more of these risk factors should be carefully assessed for competency and medication used for withdrawal should be tailored so as not to exacerbate disinhibited behavior.

Patients at risk for elopement should be placed in an inpatient area where frequent observation by clinical staff can be maintained. If such an area is not available, then the patient should be observed on a one-to-one basis until such time as the clinician is convinced that the patient's judgment is not impaired. An alternative is a locked unit, where access in and out of the unit is carefully controlled. Some hospitals use patient bracelets that activate alarms if a patient wanders off the floor.

3.1.3 Elopement -- Procedural Steps

As soon as a patient is found to have left the unit without notifying staff, an immediate entry should be made in the patient chart, outlining the name of the individual who reported that the patient had eloped, the time when this was noticed, and the approximate time when the patient was last seen on the unit.

Staff should investigate whether there are any circumstances which dictate notification of the patient's family, friends, or police. Usually, these circumstances arise if the patient is thought to be a threat to themselves or others, based on the data gathered on the patient during their stay on the unit. For example, a patient who had recently expressed threats of violence against family or others might require that police be notified of the elopement. Or, the patient may have received doses of a sedative-hypnotic, and might now present a danger to themselves or others if they were to drive, requiring the staff to notify police. It is important to make an effort to find such a patient. Another circumstance arises if the patient left with an IV access site in place. If the patient injures themselves or another innocent person, not only might such a tragedy have been prevented, but it is hard to justify the lack of effort before a court of law.

If a patient elopes with a blood alcohol level above the legal limit of intoxication (> 100mg% in many jurisdictions) the security staff should be notified and all efforts made to find the patient on the premises. If this fails, and the patient is known to drive, the police should be notified, as they will be able to correlate the name with a license plate, and may be able to pick the patient up if s/he is driving.

3.1.4 Elopement -- Analysis & Review

A chart review of each case of elopement should identify any risk factors that were overlooked in the management of the patient. The event then becomes a learning tool for clinical staff. If there is a pattern regarding the time of day or day of the week when elopements occur, when variables such as time after admission are controlled, or if elopements are correlated with particular staff, these may point to a systemic problem with staff or staffing patterns which may need to be addressed.

3.2 Discharges Against Medical Advice (AMA)

When a patient signs out AMA, it is pointless to blame the patient for such behavior. If clinicians wish to learn from these events, they must remember that a patient does not make such a decision in isolation. The patient is the reason for a health delivery system, and an AMA discharge may be indicative of systematic problems which result in inadequate attention to the patient's needs.

3.2.1 AMA Discharges -- Risk Factors

Certain factors increase the chance of an AMA discharge. These can be taken into account in developing the patient treatment plan which may help minimize an AMA discharge.

General risk factors for AMA discharge are somewhat similar to those listed for elopement above. A patient who has left a treatment facility AMA in the past is at a higher risk for an AMA discharge. The presence of such a history should prompt the clinician to look for evidence of impaired or impulsive behavior, which, as outlined

above in "Elopement -- Risk Factors," may be due to alcoholic dementia or history of severe head injuries.

Some patients may be at high risk of AMA due to poor judgment, which is in turn due to cognitive impairment from alcohol-related neurotoxicity. For example, an older patient with alcoholic dementia and alcoholism should be expected to engage in impulsive behavior which might include attempting to sign out AMA. In these cases, the patient should be evaluated for competency.

3.2.2 AMA Discharges -- Prevention & Management

The prevention of AMA discharges from an inpatient unit begins as soon as the patient is admitted to the unit. All patients who enter treatment are to some degree ambivalent about stopping alcohol use. Clinical staff needs to recognize and manage that ambivalence so that the patient chooses the option of remaining in treatment rather than opting to leave. In the early stages of AWS, using both supportive care techniques as well as pharmacotherapy may help allay the fears patients have of AWS-related symptoms.

A patient in early AWS may need to be protected from interactions with other patients or, depending on the social context of the admission, from interaction with family members, friends, or significant others who may present the patient with emotionally charged material that the patient may not be ready to handle. Protection from unexpected visitors or phone calls may also be required.

Impulsive behavior sometimes occurs in patients with a history of head injury and AWS, and can be addressed with low doses of a neuroleptic medication. Staff also needs to develop the skills to de-escalate increasingly agitated and impulsive behavior by use of techniques which gently redirect the patient in a non-judgmental fashion. Sometimes, spending some time with a patient and allowing the patient to express their own feelings regarding a particular situation can decrease the patient's emotional arousal so that they do not choose to leave AMA.

Although some patients may sign out AMA without any warning, most patients engage in a gradual escalation of negative behaviors which may culminate with a request or demand that they be discharged AMA. These patients may attempt to generate an angry staff response to furnish a reason for self-discharge. These negative behaviors may include making unreasonable demands regarding medication, asking or demanding that in-patient unit rules be relaxed, refusal of indicated medical procedures or testing, complaints about other patients' behaviors, or emotional outbursts after receiving telephone calls or visitors.

In all these cases, clinical staff should avoid showing an emotional response to a patient's behavior, which may in some cases be abusive and threatening. Patients in early stages of AWS are very sensitive to clinical staff's emotive state. In some patients with personality disorders, triggering an emotional outburst or a judgmental exchange with a staff member can give them an excuse to leave the treatment facility. Although it is very difficult at times, staff need to practice maintaining complete outward control of the biases and feelings they may have towards certain patients, so as not to compromise their ability to de-escalate patient behavior.

Patients should be informed that initiation of pharmacotherapy for AWS, if it involves administration of benzodiazepines, will preclude their ability to sign out AMA for a

period of time which is controlled by clinical staff, due to the effects of these medications on cognitive ability. If a patient shows ambivalence regarding such treatment, alternate medical regimens can be considered which do not negatively impact on cognition and judgment (see our Alcohol Withdrawal Treatment Manual for details).

Patients who may be sensitive to the effects of benzodiazepines with regards to the disinhibiting effects of the drugs should be treated, if possible, with alternate agents. Such patients include the elderly, patients who may have an underlying alcoholic dementia, and patients with a previous history of impulsive behaviors or head injuries.

Patients who have received benzodiazepines should be discouraged from leaving AMA until the effect of the drugs wears off, which may take 24-48 hours depending on the dose received and the drug administered. Some clinicians allow patients to sign out AMA even if competency is in doubt if a responsible party (either family or significant other or friend) is willing to take responsibility to monitor the patient for untoward effects of AWS, should significant symptoms develop.

3.2.3 AMA Discharges -- Procedural Steps

Before a patient is allowed to sign out AMA, they require a complete evaluation for competency by a physician or his/her designee. If there is any doubt, a psychiatric consult should be obtained. If the patient is deemed competent and appears to understand the consequences of their actions, they can be discharged AMA. If the patient has an IV access site, this should be removed prior to discharge.

Documentation of the circumstances of the AMA discharge in the clinical chart should include the names of all clinical staff who were in contact with the patient prior to discharge, and contain a description of how the determination of competency was made.

A patient may be allowed to leave AMA if and only if a clinician first examines the patient and finds the patient to be competent. Such an evaluation should center on the patient's ability to understand the possible consequences of an AMA discharge. Consequences can include physical injury due to untreated AWS, severe physical discomfort and even death. Evaluation for competency should also include an estimate of the patient's blood alcohol level. A patient with a blood alcohol level > 100 mg% (or less in some jurisdiction) is not considered legally competent and can thus not leave AMA.

Medications the patient may have received should be reviewed. A patient who has been treated with sedative-hypnotic medication, such as benzodiazepines, preceding their request to sign out AMA may in fact be experiencing cognitive dysfunction and impaired judgment. In these cases, it is helpful to wait at least 24 hours before allowing the patient to sign out AMA. The decision is based on the premise that a patient who has been treated with sedative-hypnotics may be disinhibited, and therefore is unable to make a reasonable decision regarding being discharged AMA. In some cases, as the effects of the sedative-hypnotic wear off, the patient may decide to continue with treatment.

3.2.4 AMA Discharges -- Analysis & Review

Are there other sedative-hypnotic drugs involved?

Were the patient's AWS symptoms adequately controlled?

Was the patient over-medicated with sedative-hypnotic drugs, and did the patient have a history of impulsive behavior?

Was there any behavior identified on the part of the patient which led up to the AMA discharge such as repeated requests for medication, inability to be redirected by staff, or increased psychomotor agitation?

How did the staff respond to this behavior?

A chart review performed after an AMA discharge should identify any risk factors that were overlooked in the management of the patient. Any patient allowed to sign out AMA should have documentation in the chart outlining that the proper steps were taken prior to discharging the patient AMA. These steps include:

- 1) An evaluation for competency by the physician or designee.
- 2) An explanation to the patient of the danger of uncontrolled alcohol withdrawal syndrome, especially if the patient suffers from medical co-morbidities.
- 3) A statement that the patient appeared to understand the consequences of the action.
- 4) A statement that the patient has not received dosages of medication from the facility or self-administered medication within a 24-hour period that might impair judgment.
- 5) A statement that the blood alcohol level was measured and is < 100 mg% (or whatever level is deemed to constitute an intoxicated level according to the jurisdiction).
- 6) Circumstances of discharge should be documented in the patient's chart.
- 7) An AMA or other responsibility form should be signed by patient or a significant other.
- 8) An AMA discharge order should be documented by the physician or designee.

If any of these procedures were not followed, the event then becomes a learning tool for clinical staff. In addition, if there is a pattern regarding the time of day or day of the week when AMA discharges occur, when variables such as time after admission are controlled, or if AMA discharges are correlated with particular staff, this may point to a systemic problem with staff or staffing patterns which may need to be addressed. One example is AMA discharges occurring during shift changes or on weekends, where staffing patterns may be sub-optimal.

3.3 Use of Physical Restraints

3.3.1 Types of Restraints

There are three types of restraints which are generally used. The least restrictive is the "posey" jacket, which can be used when the patient is not combative, or lacks the strength to effectively struggle. This is generally used in older patients who may be experiencing delirium, and need to be kept in bed to avoid self-injurious behavior. The

next level of restraint is the "soft restraints" which usually consist of soft canvas straps which are used on limbs to help the patient remain in bed. These are more effective, but introduce a level of risk for the patient, as they may restrict blood flow to the restrained limbs, and may also cause skin damage as a result of cloth on skin abrasion, especially with a combative patient. The most restrictive restraints are the leather restraints, which may include limb restraints as well as a jacket. These are usually used for severely combative patients, but again increase the level of risk to the patient because of the increased possibility skin abrasions, as well as the possibility that patients may sprain, dislocate, or break bones and ligaments if they are relatively pain insensitive and combative. This may occur with a combative, intoxicated patient.

The type of restraint used is dictated by clinical judgment based on the condition of the patient, the possibility of self-harm or injury to others, the physical strength of the patient, and the degree of combativeness evidenced by the patient. Whatever the restraint used, it is important to clearly document the necessity of the restraint, and why a particular restraint was chosen. The frequency of clinical contact with the restrained patient must also be recorded, along with clear documentation regarding the condition of the patient during the restraint check. All units should have a clear restraint policy outlining the procedures to be used when a patient requires restraints, and these procedures should adhere to facility standards, which are based on standards set by Joint Committee on Accreditation of Health Organizations (JCAHO).

The following suggestions regarding placement of restraints should be reviewed by the appropriate medical and administrative personnel responsible for policy and procedures used in each individual facility, as modifications may be required both to meet JCAHO standards, as well as to meet each individual facility's specific requirements.

3.3.2 When to Use Physical Restraints

The use of physical restraints in an alcohol detoxification unit results in two indicators: number of patients restrained as a percentage of the total number of patients, and amount of time each patient is held in restraints.

Physical restraints are used as a last resort when the clinician determines that the patient's behavior may be injurious to themselves or others and the patient is not capable or appears unwilling to comply with staff instructions. However, they are only a temporary measure of controlling behavior. They give the clinician time to institute the use of medication to attenuate the patient's agitated and injurious behavior, so that they can be removed at the earliest possible time.

3.3.3 Use of Physical Restraints -- Procedural Steps

Placing of a posey jacket should be accomplished by at least two staff members. Usually, the type of patient placed in this kind of restraint may not offer much resistance. However, even though the posey jacket can be placed by one staff member, it is helpful to have another staff member present to help calm the patient, as well as to provide assistance should it be required. Under no circumstances should a staff member leave a patient if the posey jacket is not fully applied, since this can result in injuries should the patient attempt to leave the bed.

Soft limb restraints should also be placed by at least two staff members. In these cases, it is critical that the patient no attempt to leave the bed half-way through the process, since this can result in severe injury.

At least five people trained in the placement of leather restraints are required to place a highly combative patient in restraints: one person to gently but firmly immobilize each extremity, and one or more persons who actually apply the restraints. These staff members should have training to minimize increasing the patient's agitated behavior. Once the restraints are in place, a physician should assure that the restraints are appropriately placed and that good circulation is maintained in all extremities. Once this is done, the patient should be placed on one-to-one observation and medication given in an expeditious manner to bring the patient under control as quickly as possible so that restraints can be removed. Appropriate medication use can significantly shorten the time the patient spends in physical restraints.

The amount of time a patient spends in physical restraints will vary from facility to facility. In the facility where one of the authors was director, the number of patients requiring physical restraints dropped over time, (from 3 to 4 per month to 3 to 4 per year) and the amount of time patients spent in restraints decreased significantly, due to more rapid titration with medications which helped to attenuate injurious behavior, allowing earlier removal. Of note, this effort was initiated by highly experienced front-line nursing staff, operating with input from all clinical staff members.

3.3.4 Use of Physical Restraints -- Analysis & Review

A number of questions should be answered on chart review. First, was there any change in the patient's behavior prior to the necessity of placing restraints? A pattern of gradual escalation of impulsive behavior can sometimes be identified where the patient is less and less apt to respond to supportive care measures. First, medical conditions which might impair judgment should be addressed and treated where possible. Examples include hepatic encephalopathy, hypoxemia, sepsis, meningitis, alcohol intoxication, or use of other sedative-hypnotics, cocaine or amphetamines. Then, in the absence of contraindications, the patient can be started on low-dose neuroleptics titrated to behavioral outcome (for more information on treating patients exhibiting impulsive behavior, see our Alcohol Withdrawal Treatment Manual).

Other issues should also be discussed: Did the patient have any pre-morbid psychiatric conditions such as bipolar disorder or a psychotic disorder? These patients can have unpredictable changes in behavior during AWS, and should be monitored appropriately. Was the patient at risk for disinhibited behavior due to a history of a head injury or alcoholic dementia or alcohol-related neurotoxicity? Was the patient treated with large doses of disinhibiting agents such as sedative-hypnotics? Was appropriate medication in adequate doses used to control behavior given to the patient and begun at the time of restraint placement? Did the patient remain on one-to-one observation, with appropriate documentation of status, for the duration of the restraint period?

In all cases where a patient was physically restrained, the following documentation should be present in the patient chart, in the progress notes:

- 1) A mental-status exam, if possible.
- 2) A statement justifying the need for physical restraints.
- 3) A statement that other measures of de-escalating the patient's abnormal behavior were tried and failed.

- 4) A statement detailing exactly how the physical restraints were applied, and the names of all staff members who participated in placing the restraints.
- 5) A brief physical exam by the physician or designee detailing that the restraints have been properly applied, and that blood flow to all extremities is preserved.
- 6) The amount and dose of medication used to control abnormal behavior (such as haloperidol) which was started, and by which route, to allow rapid removal of the physical restraints.
- 7) Exactly how often the patient will be checked for any evidence of physical injury while the physical restraints are in place.
- 8) The staff member who is identified to provide 1:1 observation of the patient while the physical restraints are in place.
- 9) The patient's response to medication, which should be an ongoing documentation.
- 10) When the physical restraints are removed, another brief physical exam specifically aimed at identifying any negative consequences of the physical restraints.
- 11) The total length of time that the physical restraints were in place.
- 12) The restraint orders were renewed by the physician or designee at 24-hour intervals and a restatement of the requirement for continued restraint is documented in the chart.

Although this seems like a great deal of documentation, it is critical to perform and document these actions on any patient in physical restraints, since following such a procedure tends to minimize the adverse effects of physical restraints, and protects staff from legal action if, in spite of the precautions, the patient suffers an adverse consequence, such as an excoriation of the skin at the site of the restraints.

The length of time any patient is physically restrained should be tracked over time. Over time, an inpatient unit will develop an average length of time a patient is physically restrained, and any patients restrained for a length of time above the mean should have their charts reviewed to assure that appropriate measures were taken to minimize the length of time. This helps to identify common errors, such as delays in administering appropriate medications to control behavior when patients are physically restrained, use of too little medication, non-use of medication, or use of inappropriate medication (for example, using large doses of benzodiazepines rather than a neuroleptic, unless the patient had a specific contraindication to use of the latter drugs).

3.4 Patient Violence

Violence physically expressed between a patient and a staff member or a patient and another patient occurring in an inpatient unit usually results from two situations. The first is a situation in which the perpetrator exhibits poor judgment due to disinhibition. This can occur in a patient because they are intoxicated with alcohol or another sedative-hypnotic. In the latter case, the intoxication may be iatrogenic. Such patients

may be prone to disinhibited behavior due to pre-existing risk factors (see below for a discussion of risk factors).

In the second case, patients may have an underlying personality disorder, and minimal or no pre-existing impairment of judgment. The episode may have been precipitated by alcohol or sedative-hypnotics. In a patient with alcohol dependence and a personality disorder, the violent outburst may occur suddenly, and without precipitating provocation. Where the patient is disinhibited, there is usually a phase of emotive escalation prior to the episode, which can allow staff more time to take preventive measures, as outlined in below.

Some facilities cope with these emergencies by having a trained "crisis response team." Such teams consist of identified personnel available during all shifts who can respond to such crises.

3.4.1 Patient Violence -- Risk Factors

Risk factors for violence are both historical (i.e. a patient with a violent history during previous episodes of withdrawal is at high risk for violent behavior) and related to the patient's physiological and psychological state.

Patients at high risk include those who suffer from pathological intoxication. Even with low (100mg%) alcohol levels, these patients are prone to extremely violent outbursts, often unprovoked. Patients with certain personality disorders, such as anti-social personality disorder are also at high risk, especially if co-intoxicated with cocaine or amphetamines. Some patients with frontal lobe dysfunction, either due to alcohol-related neurotoxicity or repeated head injuries, may have poor judgment, which may be exacerbated by alcohol and/or sedative-hypnotic intoxication. Patients with major psychiatric disorders such as paranoid schizophrenia are also at high risk. Patients entering a pre-delirious state, or who are cognitively impaired from infection, hepatic encephalopathy or hypoxia may lash out at other patients or staff. Male gender is also risk factor, with males expressing the majority of violent episodes which may be encountered on an inpatient unit.

3.4.2 Patient Violence -- Prevention

Prevention of violence is a multifactorial process on the part of clinical staff. First, patients who have risk factors need to be observed carefully for changes in behavior which can precede violent outbursts. These behaviors can include verbal threats of physical harm directed at other patients or clinical staff. If these behaviors occur, it is imperative that the patients be removed from contact with other patients. At the same time, staff needs to assess the patient to determine if they are able to contract with staff to refrain from such behavior. If a patient is deemed to be cognitively impaired, and unable to contract, they need to be placed on constant observation while reversible causes of cognitive impairment are addressed.

If patients are found to be pre-delirious, or suffering from disinhibition secondary to benzodiazepine therapy for AWS, these drugs need to be stopped and alternate agents used for treatment of AWS.

Patients with violent tendencies, whether or not they are cognitively impaired, should not be handled by a single staff member if the risk of violence is high. Male patients, especially, should not be de-escalated by solitary female staff, but should have one or

two male staff present. While violence-prone patients should not be unnecessarily provoked with overt gestures or statements, it should be made implicitly clear (for example, by the presence of two or more security staff members) that violence against staff or patients will be met with overwhelming force. Even if de-escalation is handled by medical staff members, it is wise to have security personnel readily available.

If a staff member is involved in a violent episode with a patient, they should remove themselves from the situation. Their continued presence can serve as a stimulus for repeated violence, making de-escalation of the patient more difficult.

Particular attention should be paid to the management of patients with a dual diagnosis of anti-social personality disorder and alcohol dependence or alcohol abuse. When presented with superior force, they will generally back down or restrain their behavior. Conversely, if they perceive themselves to be the superior force in a situation, they will often act out physically, especially if they are in a disinhibited state due to alcohol intoxication or other neurological impairments.

This has a number of implications. Ironically, attempts to reason with anti-social individuals and/or to appear as non-threatening as possible may provoke violence, since an anti-social patient will take these approaches as a sign of weakness and "go on the offensive." In dealing with such patients, then, the clinician should take a middle ground. While it is important not to provoke these patients with overt threats or gestures, it is also important to set clear limits, to remain calmly in control of the situation, and to make it clear, explicitly or implicitly, that immediate consequences will follow if limits are exceeded.

Violence-prone patients should have their immediate environment controlled to minimize contact with other patients. They should not be surprised with invasive procedures such as blood draws or with cognitively intensive tasks such as filling out history forms or dietary requests in the absence of unit-based clinical staff. Such perceived invasions can escalate the patient into engaging in disruptive and dangerous behavior.

If supportive methods of violence-prevention fail, the patient should be evaluated for impairment in judgment, either due to alcohol intoxication, AWS, or sedative-hypnotic intoxication. Organic causes of impairment such as hepatic encephalopathy, dementia, or psychosis should also be considered. If evidence of impairment is found, and there are no contraindications, then the patient should be started on a low-dose neuroleptic (i.e. fluphenazine 1mg every 6 hrs.) and placed on frequent checks (every 15 minutes) or constant observation.

It is important to note that violence-prone patients cannot be discharged if they are impaired. If the patient continues to escalate out of control, then staff should treat these cases exactly they would treat any agitated patient: with physical restraints, neuroleptics, and constant observation (as outlined in "Use of Physical Restraint" on page 15) until the patient is able to contract to stop the behavior.

If a patient is not found to have impaired judgment, as in the case of a patient with severe anti-social personality disorder, then the patient should be given a chance to improve their behavior by giving them a clear set of guidelines to follow. These guidelines should define what behavior is acceptable and what behavior is not acceptable on an inpatient unit. If the patient refuses to follow these guidelines, and

they are not impaired, they should be immediately discharged to protect other patients and staff. Security staff should escort the patient off the unit.

3.4.3 Managing Violent Behavior Emergencies

Managing an assaultive patient who may have already exhibited violence is an emergency situation.

First, other patients must be isolated from the assaultive patient. This should be the top priority of the clinical staff. Second, as security personnel are called for help, staff members should attempt to de-escalate the behavior with a staff to patient ratio of at least 4-to-1. Until security arrives, the patient should not be restrained unless required to maintain safety. Once security is in place, the patient should be immediately restrained as outlined in the section "Use of Physical Restraints" on page 15.

3.4.4 Patient Violence -- Procedural Steps

As soon as a staff member notes an episode of patient violence, the following steps should be undertaken as quickly as possible:

- 1) The staff member should make sure that another staff member on the unit is notified. This second staff member should immediately notify all other staff members on the unit, so that other patients can be isolated from the violent or assaultive patient.
- 2) Other patients should be physically removed, if ambulatory, as far as possible from the location of the violent patient.
- 3) The second staff member should provide for all available staff members to assist the first, responding staff member in managing the patient. Security personnel should also be notified. Staff members should not engage a violent patient alone.
- 4) The second staff member needs to call for a security back-up, so that additional staff are present should the assaultive patient need to be physically restrained.
- 5) The first or responding staff member should, while attempting to de-escalate the patient's behavior, attempt to prevent the violent patient from engaging any other patients on the unit.
- 6) In the event that the first staff member was involved in the violence, this staff member should remove themselves from the situation, and another staff member should take over.
- 7) It is important if only one staff member attempts to engage the patient, as this tends to decrease the possibility for confusion. The staff member helping the responding staff member should remain quiet but present as the responding staff member attempts to de-escalate the violent patient. The violent patient should be gently but firmly reminded of the consequences of further violent acts.
- 8) The responding staff member needs to decide if the patient is able to comprehend the consequences of their actions, and whether the patient can "talked down." If this is not possible, the staff member needs to continue to

engage the patient until such time as at least five staff/security members are present, so that physical restraints can be safely and effectively applied.

- 9) If the violent patient responds to being talked down, a decision should be made, along with the physician or his or her designee, as to whether the patient might require medication to help control behavior. Such medications should include low-dose neuroleptics. An evaluation for competency should also be attempted at that time, and the results documented in the patient's chart. If a staff member or patient is felt to be physically hurt, these individuals should receive documented medical attention, even for seemingly minor injuries.

As soon as the situation is resolved, a detailed account of the episode needs to be written into the patient chart, outlining which staff members were present, what actions were taken, and the physical and psychological condition of the violent patient at the end of the episode.

While we have described a general procedure for the management of assaultive or violent patients, every circumstance involving patient violence requires many judgment calls on the part of both security and medical staff. It is therefore impossible for us to give specific advice that encompasses all situations, but it may be appropriate in some circumstances to prefer legal charges against assaultive patients. This is especially true when such patients appear to meet common-sense standards for competency (i.e. if they are not severely intoxicated and have not yet been treated with medication)

3.4.5 Patient Violence -- Analysis & Review

The number of instances of patient-on-patient violence and of patient-on-staff violence should be tracked. A chart review should occur in all such cases. Questions to be answered are:

- 1) Did the patient have any risk factors for violence or disinhibited behavior? (These would include: previous history of violence, history of head injuries, treatment with large doses of disinhibiting drugs such as benzodiazepines, and unrecognized development of delirium or encephalopathy.)
- 2) Did staff note any change in the patient's behavior over time which may have preceded the event?
- 3) Was the patient examined after the incident and was this documented in the chart?
- 4) Was the treatment plan altered after the incident?
- 5) If a patient-on-patient incident occurred, all of these questions should be answered for both patients.
- 6) If a patient-on-staff incident occurred, was the staff member examined for injuries?

3.5 Emergency Transfers

Emergency transfers occur when the patient's physical condition deteriorates to such an extent that they require transfer to a surgery, intensive care unit, psychiatric unit or

a coronary care unit. All such transfers should result in index cases, since they may point to serious deficiencies in the care of the patient.

3.5.1 Emergency Transfers -- Procedural Steps

Prior to transfer, and in some emergency cases immediately after the transfer has occurred, the staff needs to assure that a summary of the patient's history, physical exam, pertinent laboratory data, course of treatment, and circumstances immediately surrounding the transfer event are documented in the patient chart, and available to staff who will receive the patient in transfer. The patient's family, friends, or significant other should be notified of the transfer and pertinent records should arrive at the transfer facility/unit at the same time as the patient.

3.5.2 Emergency Transfers -- Analysis & Review

A transfer to an intensive care unit or, in the case of an inpatient program outside of a hospital, a transfer to a hospital or psychiatric facility should prompt a chart review. Questions to be answered are:

- 1) Was the patient at risk for this event, and was such a risk recognized on admission? (For example: a patient with coronary artery disease who develops angina.)
- 2) Given the pre-existing risk, was the patient appropriate for admission to the facility?
- 3) Was the treatment of AWS modified to take this risk into account?
- 4) Did a patient suffer any prodrome prior to the incident that was not recognized by staff?
- 5) Once the problem was recognized, how much time elapsed before the patient was transferred to higher level care?
- 6) Was the treatment provided to the patient while awaiting transfer timely and appropriate?

3.6 Cardiopulmonary Arrest

Any patient who requires cardiopulmonary resuscitation (CPR) on a substance abuse unit is considered an index case, and the chart should be reviewed.

3.6.1 Cardiopulmonary Arrest -- Risk Factors

Cardiopulmonary arrest may result from numerous causes during detoxification. Patients at risk involve those patients who have a history of coronary artery disease who may suffer myocardial infarctions during a hyperadrenergic phase of withdrawal, if not properly treated. Hypoxia resulting from an alcohol withdrawal seizure in a patient with pre-existing coronary artery disease may also result in a myocardial infarction or cardiac arrhythmia. Cerebrovascular events such as brain hemorrhage due to labile hypertension may also occur.

Severe electrolyte abnormalities, which may be found in malnourished patients or patients suffering prolonged nausea, vomiting and diarrhea, may result in cardiac

arrhythmias and/or seizures. In susceptible patients, this may precipitate cardiac arrest.

Overmedication with benzodiazepines in patients who have pre-existing severe chronic obstructive lung disease (COLD) may decrease ventilatory drive enough so that hypercarbia ensues, again resulting in cardiac excitability and cardiac arrest.

Patients may be sensitive to the dopamine antagonist effects of neuroleptic agents such as haloperidol, and may develop upper airway obstruction and consequent ventilatory compromise.

Unrecognized ventilatory compromise may also occur in severely malnourished alcoholics due to unrecognized lung infections. In the worst cases, cognitive compromise in such patients is not recognized as being due to pneumonia, but is attributed to AWS.

Patients with severe liver disease may be prone to bleeding disorders whose expression is made worse by the presence of esophageal varices. Such patients may suffer from rapid exsanguination due to a ruptured varix, or failure to clot a gastric or duodenal ulcer.

3.6.2 Cardiopulmonary Arrest -- Prevention

An awareness of the patient's medical co-morbidities, which is obtained by a good history and physical examination, can help to define which patients are at risk. In addition, AWS symptoms need to be interpreted in the context of an exclusionary diagnosis, so that symptoms are not wrongly attributed to AWS which may result from other underlying pathologies.

Severely malnourished patients or patients with severe nausea and vomiting should have serum electrolytes followed once or twice every 24 hours for at least 72 hours, until the clinician is certain that electrolyte derangements have been stabilized.

Patients with hypertension should be monitored more frequently so that hypertensive emergency-related morbidity and mortality can be prevented by specific treatment.

Patients with coronary artery disease should also be monitored frequently, and symptoms of adrenergic hyperactivity such as tachycardia and hypertension should be treated aggressively.

Any patient with severe COLD should have ventilatory status monitored if benzodiazepines are used to treat AWS to avoid relative overdose and a decrease in ventilatory drive.

Patients who have a risk of seizures, especially if they are older or have underlying coronary artery disease, should have close attention paid to electrolyte status, where hypokalemia, hypomagnesemia, and hypocalcemia can contribute to CNS irritability, and should be treated aggressively.

Finally, all staff working in an inpatient unit should have at least working knowledge of basic CPR. A CPR cart containing the necessary equipment for intubation and medication should be available, and all staff should know its whereabouts, its contents, and how to assist staff who responds to the emergency. Procedures should be in place to assure that the CPR cart does not contain expired materials and its contents should be examined on a regular basis to assure that all equipment is in working order. Units

operating in medical facilities have a code team available on an emergency basis to assist in the initial treatment of the patient. If a unit is not located in a medical facility, a procedure should be developed to assure that such patients can be safely and quickly transported to an emergency room for further evaluation and treatment.

3.7 Cardiopulmonary Arrest -- Procedural Steps

All employees should, as part of their CPR training, know the policies and procedures required to activate the emergency medical system. Before initiating CPR, the staff member noticing the emergency should notify another staff member to assure that the event can be communicated as quickly as possible to a code response team, if available. If not, the second staff member should initiate procedures to transport the patient to an emergency room, at which time they can then help the first staff member handle the emergency.

Unless a physician or designee is available, the patient should continue to receive emergency cardiac life support measures until such time as a physician can evaluate the patient's status and make a decision for continued CPR if the patient has not responded to treatment.

The patient's family should be quickly notified of the patient's status, preferably before the patient is transported out of the unit or to another facility. The family might have a preference as to which attending physician at a receiving facility will be designated to admit the patient.

After the patient is stabilized, or if the patient is declared dead, careful documentation of all aspects of the code should be entered into the patient's chart. These should include the time the patient was noticed to require CPR, the names of responding staff who took charge of the CPR, what procedures and medications were used during CPR, and the disposition of the patient, along with a clearly explained time line during which these events occurred.

3.7.1 Cardio-Pulmonary Arrest -- Analysis & Review

All cases where a patient suffers cardio-pulmonary arrest should be reviewed. Such a patient should be stabilized using cardiopulmonary resuscitation (CPR) prior to transfer to an intensive care unit. In addition to the questions in "Emergency Transfers -- Analysis & Review" on page 23, a review in these cases should involve an examination of the following issues:

- 1) How much time elapsed between the time the arrest was noted and the institution of CPR?
- 2) How many staff members participated in CPR?
- 3) Does a statement appear in the chart outlining the care given to the patient prior to transfer and the patient's condition prior to transfer?

3.8 Alcohol-Related Seizures

In the author's experience, the rate of alcohol-related seizures occurring in an inpatient unit is a general marker of the overall quality of care for AWS. The reason for this is

that these occurrences can be easily prevented with careful attention to the patient's history and physiological state during AWS.

3.8.1 Alcohol-Related Seizures -- Risk Factors

Risk factors for alcohol-related seizures include: a history of head trauma, a previous history of seizures, and undiagnosed or untreated hypomagnesemia, hypokalemia, or hyponatremia. Hypoglycemia may also cause a seizure in this setting. Patients with a high tolerance to alcohol and/or sedative-hypnotic agents, if not aggressively managed, may also experience withdrawal seizures. A patient using sedative-hypnotics such as Ativan (lorazepam) prior to admission which was missed on initial evaluation this may result in emergent seizures.

3.8.2 Alcohol-Related Seizures -- Prevention & Management

Although clinical study with interpretable results addressing the issue of seizure prevention in susceptible patients has yet to be done, aggressive treatment of patients with AWS and seizure history with benzodiazepines, Tegretol (carbamazepine), or valproic acid should be undertaken. Careful attention to and correction of electrolyte abnormalities, especially hypomagnesemia and hypokalemia is also indicated for all patients undergoing AWS.

3.8.3 Alcohol-Related Seizures -- Analysis & Review

Tracking the number of alcohol-related seizures tends to be a general measure of the effectiveness of treatment of AWS, since proper treatment, with attention to electrolyte imbalances (especially magnesium and potassium) as well a prompt institution of medication may decrease the risk for AWS-related seizures. Any patient case who suffers an AWS-related seizure should have a chart review. The following questions should be answered:

- 1) Did the patient have a history of AWS-related seizures and was this risk taken into account in the treatment plan?
- 2) Did the patient have serum electrolyte determinations prior to the event, including a serum magnesium?
- 3) Were abnormalities in electrolytes noted and corrected?
- 4) Was the patient medicated for AWS prior to the event?
- 5) If the patient was not medicated prior to the event, were there circumstances precluding medication?
- 6) If the seizure was witnessed by medical staff, how long did it last and is this documented in the chart?
- 7) Were appropriate measures taken to protect the airway and avoid injury to the patient during the event, if witnessed?
- 8) Was the patient examined soon after the event by a physician (an appropriate time may vary depending on the institution, but in a hospital based unit the time should be less than 10 minutes)?

- 9) What measures were taken to treat the event, such as starting an IV line (if appropriate given the level of care provided by the facility) if not present and what medication was given?
- 10) Were serum electrolytes and magnesium measured soon after the event and abnormalities corrected?
- 11) Was the treatment plan modified after the event (for example, the patient was given loading doses of benzodiazepines, Tegretol (carbamazepine), or Depakote (valproic acid)?
- 12) Did the patient require transfer from the unit?

In some cases, the same patient may suffer more than one AWS-related seizure during the same admission. All such cases should be reviewed, and additional questions should be answered:

- 1) Was a complete neurological examination completed after the event, with specific attention to focal findings?
- 2) Were there any delays in instituting changes in the treatment plan (for example, a medication was ordered after the first seizure, and the patient did not receive it within a reasonable amount of time, 10 - 20 minutes)?

3.9 Falls

3.9.1 Falls -- Risk Factors

Certain medications used in the treatment of AWS can result in orthostatic hypotension or problems maintaining balance (ataxia), which can result in falls, either from bed as the patient attempts to arise or from a fully standing position. Falls may also result if a patient undergoes a seizure while in an upright state. Therefore, tracking the number of falls over time can result in an integrated measure of quality of care. An increase in the number of falls may indicate over-medication, especially of elderly patients, or inattention to the blood pressure lowering effects of agents which are used to decrease certain AWS symptoms. Patients receiving these medications should be observed for evidence of ataxia, i.e. wide-based gait, nystagmus, or any difficulties with balance. Older patients (>65 y.o.) are particularly at risk for these side-effects. It should also be noted that a high rate of falls may represent problems in the physical layout of the unit, for example slippery floor coverings and/or poor lighting.

3.9.2 Falls -- Prevention

Since falls can result from ataxia, which itself can result from medication with benzodiazepines, Tegretol (carbamazepine) or valproic acid, patients receiving these medications should be checked for ataxia prior to the next dose, and if ataxia is noted, the dose should be held and the case discussed with a physician or their designee.

Patients with pre-existing alcoholic cerebellar degeneration and the elderly are prone to the ataxia-producing effects of sedative hypnotics and certain anti-convulsants. These patients should be monitored carefully for side-effects during treatment.

Patients who have ataxia should be placed on bed rest and should be allowed to ambulate only with assistance until the ataxia resolves. It is particularly important that

they not have access to bath/showers, since unwitnessed falls commonly occur in these areas, and can be devastating for an older patient.

3.9.3 Falls -- Analysis and Review

All cases of falls should be reviewed, and the following questions should be answered:

- 1) Did the patient undergo any physical examination after the fall, looking for evidence of trauma, and was this recorded in the chart?
- 2) Did the examination specifically address the presence or absence of cerebellar dysfunction as may be seen, for example, in a patient overmedicated with benzodiazepines?
- 3) Was the medication list reviewed for the presence/absence of medications which might adversely affect cerebellar function?
- 4) Did the patient have a known history of alcoholic cerebellar degeneration, or other movement disorder or physical disability limiting ambulation, and were these facts taken into account when the treatment plan was developed? (For example, such a patient should probably receive benzodiazepines in reduced dosage, if at all, and should be monitored closely for ataxia and instructed to request a nurse for ambulatory assistance).
- 5) Was the treatment plan modified after the patient's fall to make a repeat incident less likely? (For example, a patient found to be ataxic and confused might need temporary one-to-one observation to avoid another accident).

3.10 Length of Stay (LOS)

3.10.1 Length of Stay -- Analysis & Review

Patients suffering therapeutic misadventures or unavoidable complications of AWS due to underlying medical conditions can be expected to have an increased length of stay (LOS). It thus makes sense to review charts of patients who exceed an average LOS over a period of time, since significant problems can be identified and hopefully prevented. Because LOS data can vary by primary and secondary diagnosis, it is important to stratify patients by the primary and secondary (if present) drug of use. An example of an analysis of LOS data based on primary and secondary drug of use follows:

Table 3: Means Table for Primary and Secondary Drug Effect on LOS (Days)

Primary Drug	Secondary Drug	#Patients	LOS	SEM
Alcohol	None	1772	5.27*	0.07
Alcohol	Cocaine	823	6.48**	0.14
Alcohol	Marijuana/Hashish	67	5.10	0.30
Alcohol	Heroin	66	5.97	0.63
Alcohol	Other opiates/Synthetics	16	5.00	1.27

Primary Drug	Secondary Drug	#Patients	LOS	SEM
Alcohol	Benzodiazepines	19	5.84	0.70
Cocaine	None	23	7.30	1.24
Cocaine	Heroin	16	9.25	1.11
Heroin	None	157	11.17	1.02
Heroin	Alcohol	55	12.29	0.91
Heroin	Cocaine	352	12.03	0.31
Heroin	Marijuana/Hashish	17	9.29	1.86
Heroin	Other opiates/Synthetics	45	11.93	1.05
Heroin	Benzodiazepines	31	11.90	0.90

Parametric ANOVA, Bonferroni-Dunn adjustment for all-means comparisons.

*significantly different from Alcohol/Cocaine, Heroin/Cocaine, Heroin/Alcohol at $p < 0.0001$

**significantly different Heroin/None, Heroin/Cocaine, Heroin/Alcohol at $p < 0.0001$

Information in this table is taken from data analyzed during a quality assurance audit performed at a state detoxification facility.¹

As can be seen from the table, patients with a diagnosis of alcohol dependence had a mean LOS of 5.27 days, which was significantly different when a second drug, cocaine, was involved. Developing such normative data is helpful in deciding what would constitute an outlier. For example, a patient whose primary diagnosis was alcohol dependence and who was not dependent on other drugs might be considered an outlier if the LOS was > 14 days, or mean LOS + 3 standard deviations, whereas a patient dependent on alcohol and cocaine might be considered an outlier if the LOS was > 18 days.

Charts chosen for review based on outlier LOS data should be perused by a physician as well as by nursing and counseling staff. Problems may be found in clinical management of the patient or in failure to develop an adequate and realistic discharge plan. A common example of the latter is holding a patient in the unit while awaiting a bed in a residential or other rehabilitation facility. If a pattern of problems is found, then measures to decrease long LOS can be instituted. For example if a pattern of poor discharge planning emerges for a particular type of patient, clinical staff can develop and implement better discharge planning procedures.

¹Alexander C, DePetrillo PB, Peterson DJ. Center for Substance Abuse Treatment Quality Assurance Technical Assistance Audit. Benjamin Rush, State of Rhode Island. 1994.

3.11 Patient Readmission

3.11.1 Patient Readmission -- Analysis & Review

Knowledge of the number of times a patient has been admitted for inpatient detoxification, even if admission occurred at another facility, is of immense help in treatment planning. A high readmission rate suggests that the treatment plan is not meeting the patient's needs, although some clinicians tend to write off such patients as recidivists. An example of readmission data is presented below:

Table 3: EFFECT of PRIMARY AND SECONDARY DRUG OF ABUSE ON NUMBER OF ADMISSIONS OVER THREE YEARS

Primary Drug	Secondary Drug	Mean Number of Admissions	SEM
Alcohol	None	9.36*	0.28
Alcohol	Cocaine	4.61	0.20
Alcohol	Heroin	7.98	0.64
Heroin	None	2.17**	0.15
Heroin	Cocaine	2.40	0.21

*significantly different from all others at $p < 0.001$

** significantly different from Heroin, Alcohol at $p < 0.04$.

A chart review of patients who exceed the normative readmission data can highlight problems in treatment matching. For example, over a three year period as noted above, a small group of patients had > 21 admissions for detoxification in the Alcohol, None category. The readmission rate is strikingly different from that of patients in the Heroin, None category. In our experience, many of the alcohol-using patients, mostly > 40 yr age, are suffering from significant alcohol-related cognitive impairments. Failure to recognize such impairments results in the placement of such patients in treatment settings requiring a normal level of cognitive function, which do not meet the patient's needs. Such patients should have a screening Folstein Mini-Mental² status examination, with special attention to short-term memory deficits. Patients who score < 25 or who appear to continue to act in an impulsive, disinhibited manner after detoxification may benefit from formal neuropsychiatric testing, in order to determine if organicity is present. If normal cognitive function is found, these same patients who are unable to maintain sobriety or drop out of treatment shortly after discharge might require the recruitment of their support network, be it family, significant others, or employers, who can also become invested in a treatment plan.

²Folstein MF et al. "Mini-Mental state," a practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res 12:189. 1975