

# Alcohol related injuries in Yap

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## Introduction

Every year, Yap has a rate of alcohol consumption among adult males and female many times higher than in any other state in the FSM.<sup>1</sup> Many crimes are alcohol related. In the Yap State Hospital emergency room there are many alcohol related injuries requiring treatment. The reasons for this excessive use of alcohol are not clear.

Yap, with a population of 11,128, is known as the land of stone money and betelnut chewing. The State consists of Yap main island (divided into 10 municipalities) and several inhabited neighboring islands. The main source of income is through the Compact of Free Association with the United States, which will end in the year 2001. The Yap State Hospital (50-bed facility), with 16 staff physicians, provides the majority of health care services although several dispensaries that exist on the Yap main island and the neighboring islands where no doctor is available also provide minimal health care. The native people of Yap chew Betelnut with and without tobacco, and drink tuba (wine made from the sap of coconut trees) and commercial alcohol as part of their social activities.

There have been several reports done to discuss issues related to alcohol problems in Micronesia. However, none of these have addressed medical issues. In 1997, a comprehensive study prepared by the Micronesian Seminar about Alcohol and Drug Use in the Federated States of Micronesia stated that "no reliable information could be obtained on the number of hospital admissions for alcohol related injuries." However, the study reported alcohol related injuries.<sup>1</sup> Furthermore, the same study stated that "the percentage of alcohol related deaths over all death in FSM has risen from 3.5 percent (1991) to 5.9 percent (1995)."<sup>1</sup> Through out the study it clearly states that Yap has spent a lot of money on alcohol as compared to other states in Micronesia.

Another comprehensive study, conducted by Mac Marshall, was presented at the FSM/WHO Joint Conference on Alcohol-Related and Drug-Related Problems in Micronesia in 1993.<sup>2</sup> It stated that "It is the two non-traditional legal drugs — alcohol beverages and tobacco — that exact the highest public health costs of the various substances under consideration." The author also made a strong statement that "True economic development involves creating conditions for a *healthy* population, not encouraging businesses that market products known to cause serious diseases and other health risks."<sup>2</sup>

This project was to evaluate and quantify the impact of alcohol related injuries in Yap State. The objectives were:

- To provide the demographic data of alcohol related injuries reported to Yap State Hospital (YSH) for a two-year period (May 1<sup>st</sup>, 1996 and April 30<sup>th</sup>, 1998).
- To determine the total number of type of injuries reported to YSH during the two years.
- To determine types of treatment provided to injury patients seen at the hospital within the time period.
- To determine the total number of referral cases of alcohol related injuries and the total cost within the time period.
- To determine and categorize the causes of injuries (intentional or unintentional) during the period of the study.

## Methodology

This is a descriptive study to determine the number of alcohol related injuries encountered at Yap State Hospital emergency room in comparison to the non-alcohol injury related cases. The definition of an alcohol related injury included any case in which alcohol was involved, whether a patient drank alcohol around the time of injury or the patient was a victim of someone who drank alcohol around the time of injury.

The study utilized data collected from the injury report at the YSH between May 1<sup>st</sup> 1996 and April 30<sup>th</sup> 1998. Each injury report was reviewed to obtain the age, sex and address of patient as well as the date, place, cause, type and outcome of the injury. In addition the cost of overseas referral for any of these injuries were assessed.

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**Table 1. Number of injuries, by patient's place of residence**

Municipality	Alcohol related	Non-alcohol related	Total cases reported
Dalipebinaw	4	0	4
Fanif	14	1	15
Gagil	13	0	13
Gilman	5	0	4
Kanifay	1	2	3
Maap	3	0	3
Rull	21	2	23
Rumung	0	0	0
Tomil	10	3	13
Weloy	10	2	12
<i>Neighboring Island</i>	4	1	5
<i>Residing outside of Yap</i>	3	1	4
<b>Total number</b>	<b>88</b>	<b>12</b>	<b>100</b>

## Results

There was a total of 100 injuries recorded at Yap State Hospital during the two year period. Of this number, 88 cases were alcohol-related injuries and 12 were non-alcohol related injuries. Between May '96 and April '97, 81% of all injuries were alcohol related injuries and only 19% were non-alcohol related. Between May '97 and April '98, 93% were injuries which were alcohol related and only 7% were non-alcohol related. During May '96 to April '97, the ratio of male to female alcohol related injuries was 4.5:1 and between May '97 to April '98 the ratio was 3.2:1. Ninety three of all the injured patients were between 18 and 65 years of age, of which 82 were alcohol related and 11 were non-alcohol related injuries

Table 1 shows the patients' place of residence. The results show that people residing in Rull municipality have the highest number of alcohol related cases with 21 injuries followed by Fanif with 14 cases and Gagil, Tomil, and Weloy had 13, 10, and 10 respectively. There were four cases involving people who were not citizens of Yap who reported their place of residence as outside of Yap, of which one was alcohol related and three were non-alcohol-related cases.

Table 2 shows the number of injuries by municipality where the injury took place. The results show that Weloy municipality had the highest number of injuries take place (28 cases). Twenty-three were alcohol-related and five were

non-alcohol related. Tomil and Rull had the second highest number of alcohol related injuries with 17 cases in each in each municipality. There were no reported injuries in Rumung municipality and the neighboring islands during the two-year period. There was one non-alcohol related injury which occurred in the ocean while the patient was working in his boat.

In regards to the cause of injuries, the results show that 80% of all alcohol related injuries were intentional compared to 20% being non intentional over the two year period. The results were similar when looking at the individual years; there were more alcohol related intentional injuries in each year compared to alcohol related non-intentional injuries.

Results also show that there was an obvious increase of both intentional and non-intentional causes of injuries when comparing the second year to the first year. Notable was a five-fold increase in motor vehicle crashes involving injuries to the driver. (See Table 3)

Table 4 shows the type of injuries which were reported as the "first disease" or the main complaint. The results show that lacerations from alcohol related injuries were by far the most common complaint at the Yap State Hospital with 46 cases compared to three non-alcohol related cases. Furthermore, all blunt trauma cases (18 cases) and skull fractures (two cases) were alcohol related during the two-year period.

**Table 2. Number of injuries, by municipality where injury took place**

Municipality	Alcohol related	Non alcohol related	Total cases reported
Dilipebenau	2	0	2
Fanif	12	0	12
Gagil	6	0	6
Gilman	6	0	3
Kanifay	1	2	3
Maap	4	0	3
Rull	17	1	17
Rumung	0	0	0
Tomil	17	3	17
Weloy	23	5	28
Ocean	0	1	1
<b>Total number</b>	<b>88</b>	<b>12</b>	<b>100</b>

**Table 3. Alcohol related injuries, by causes and year**

Cause of injuries	May 1996 - April 1997	May 1997 - April 1998	Total (%)
<b>Intentional</b>			
Murder	0	0	0
Suicide	0	0	0
Suicide Attempt	0	0	0
Assault	28	31	59
Domestic Assault	0	9	9
Rape	0	2	2
<i>Total Intentional</i>	<i>28</i>	<i>42</i>	<i>70 (80%)</i>
<b>Non-intentional</b>			
MV Crash, Driver	2	10	12
MV Crash, Passenger	1	1	2
MV Crash, Pedestrian	0	0	0
Fall	2	2	4
Drowning	0	0	0
Other	0	0	0
<i>Total Non-intentional</i>	<i>5</i>	<i>13</i>	<i>18 (20%)</i>
<b>Total alcohol related cases</b>	<b>33</b>	<b>55</b>	<b>88 (100%)</b>

Table 5 reveals the number of "second disease" type or secondary complaint. The results show that all the types of injuries regarded as "second disease" type were alcohol related except for 2 abrasions among non-alcohol related injuries.

Table 6 shows the total number of admissions among alcohol related injuries and non alcohol related injuries over the two year period. The results show that there was an increase in the number of alcohol related injuries requiring admission over the last two years. The results show that between May '96 and April '97, 79% of all injuries which were being admitted were alcohol related compared to 25% non alcohol related. Between May '96 and April '98, 95% of all injuries which were being admitted were alcohol related compared to 5% non alcohol related.

Table 7 shows the number of injuries being treated and sent home. The results show that there was an increase in the number of alcohol related injuries that were treated and sent home over the last two year period. Eighty-four percent of all injuries that were treated and sent home between May '96 and April '97 were related to alcohol compared to 16% that were non alcohol related injuries. Ninety-two percent of all injuries that were treated and sent home between May '97 and April '98 were alcohol related and only

eight percent were non-alcohol related. In regards to the number of referral cases, the study reveals that all the injuries being referred off island for treatment were alcohol related and none were non-alcohol related injuries.

Table 8 shows the total number of referral cases within the two-year period and the cost. The study reveals that all the injuries were male within the productive age range (23 to 50 year of age). There were two cases referred to Guam and two cases sent to Philippines and one to Palau. The total management cost of these cases range from \$1,898 to \$23,489 with a total cost of \$50,686.

## Discussion and Conclusion

An observational descriptive study was conducted to determine the number of alcohol related injuries seen at Yap State Hospital which would be a baseline information for health education programs targeted to the people who use alcohol. The study reviewed all the injury reports made and filed at Yap State Hospital. Due to the type of study, several points should be noted when drawing any conclusions.

- **Review of injury report.** This study looked only at injuries that were reported to Yap State Hospital through the filing of an injury report. It is likely that many injuries were not reported both in Yap and the neighboring islands, either because injuries were less severe and the patient was not brought to the hospital, or the hospital was geographically inaccessible.
- **Most injuries that were reported were alcohol related.** The study shows that most of the injuries reported and seen at Yap State Hospital were alcohol related. Most of them were male within productive age group. Weloy and Rull were two municipalities that revealed the highest number of alcohol related injuries in respect to place the injury took place and the place of residence respectively.
- **Most cases that resulted in multiple injuries were alcohol related.** The study shows that most cases of alcohol related injuries have multiple injuries or complaints compared to non-alcohol related injuries. Possible explanation to that is that the alcohol related injuries might be more serious than non-alcohol related injuries. Therefore alcohol related injuries seem to require more medical attention than non-alcohol related injuries.

**Table 4. Type of injuries reported as 'first disease', alcohol related vs. non-alcohol related**

Type of injuries	Alcohol related	Non alcohol related	Total
Laceration	46	3	49
Abrasion	10	5	15
Skull fracture	2	0	2
Head contusion	8	1	9
Fracture extremities	1	0	1
Blunt trauma to the body	18	0	18

**Table 5. Type of injuries reported as 'second disease', alcohol related vs. non-alcohol related**

Type of injuries	Alcohol related	Non alcohol related	Total
Laceration	3	0	3
Abrasion	13	2	15
Skull fracture	1	0	1
Head contusion	5	0	5
Fracture extremities	2	0	2
Blunt trauma to the body	9	0	9

**Table 6. Total number of admissions of alcohol related injuries vs. non-alcohol injuries, by year**

Dates	Alcohol related(%)	Non-alcohol related(%)	Total (%)
May 1996-April 1997	12 (75%)	4 (25%)	16 (100%)
May 1997-April 1998	19 (95%)	1 (5%)	20 (100%)
<b>Total</b>	<b>31</b>	<b>5</b>	<b>36</b>

**Table 7. Total number of alcohol related injuries vs. non-alcohol related injuries treated and sent home, by year**

Dates	Alcohol related	Non-alcohol related (%)	Total
May 1996-April 1997	21 (84%)	4 (16%)	25
May 1997-April 1998	34 (92%)	3 (8%)	37

**Table 8. List of alcohol related injuries being referred and the cost**

Age (years)	Sex	Date	Diagnosis	Referral location	Cost (\$US)
24	M	12/14/96	Fracture of mandible	GMH, Guam	\$4,553.49
50	M	12/11/96	Fracture of humerus & rt. Ilium, (acetabulum & acetabular fossa of rt. hip)	Palau hospital	\$2,423.03
23	M	11/20/97	Subdural hematoma & skull fracture	SLMC, PI	\$18,322.48
27	M	03/22/98	Head injury from MV crash, left facial palsy, post evacuation of hematoma rt. temporal area	SLMC, PI	\$1,898.14
26	M	03/22/98	Subdural hematoma	GMH, Guam	\$23,488.97
<b>Total cost:</b>					<b>\$50,686.11</b>

- **Most alcohol related injuries were intentionally caused.** The study reports that violence was largely associated with alcohol consumption. A large number of intentional injuries were assaults (59 cases) followed by domestic assaults (nine cases) and finally two rape cases.
- **Increase in injuries of drivers of motor vehicles (MV crash, driver).** The study shows an obvious increase in injuries to drivers of motor vehicles over the two-year period. The reasons for the increase are not clear. Possible explanations include more people driving while intoxicated, more cars on the island, and less enforcement of road and drinking permit laws.
- **All injuries that required referral cases were alcohol related.** The study shows that all the referral cases were due to alcohol related injuries that needed treatment off island. This means that \$US 50,686 was spent on only five people. This sum of money could have been used to buy medicines and supplies that the hospital needs. These problems could have been avoided.
- **Study does not show other economic costs of alcohol consumption.** These include non-injury disease costs, etc. However, considering the cost of hospitalization, the life being injured, and off island referral cases from alcohol related injury can not be compared with the economy of this island.

## Recommendations

Based on this study it was recommended to:

- reduce the use and sale of alcohol on the island;
- provide more health education to the public regarding alcohol related injuries, especially at Rull and Welloy;
- monitor the trend of alcohol related injuries;
- increase health care service charges to all alcohol-related injuries on patients who came in intoxicated.

- design a program or clinic to follow up all the patients who are known as alcoholic.
- To enforce laws against drunk driving in Yap.

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## References

1. *Micronesian Seminar Report, 1995.* Unpublished.
2. Mac Marshall (August 9-12, 1993) Background Briefing Paper, *The FSM, WHO Joint Conference on Alcohol related and Drug-related problems in Micronesia.* □