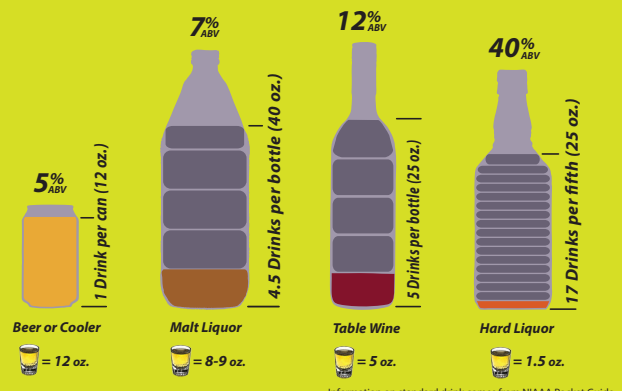
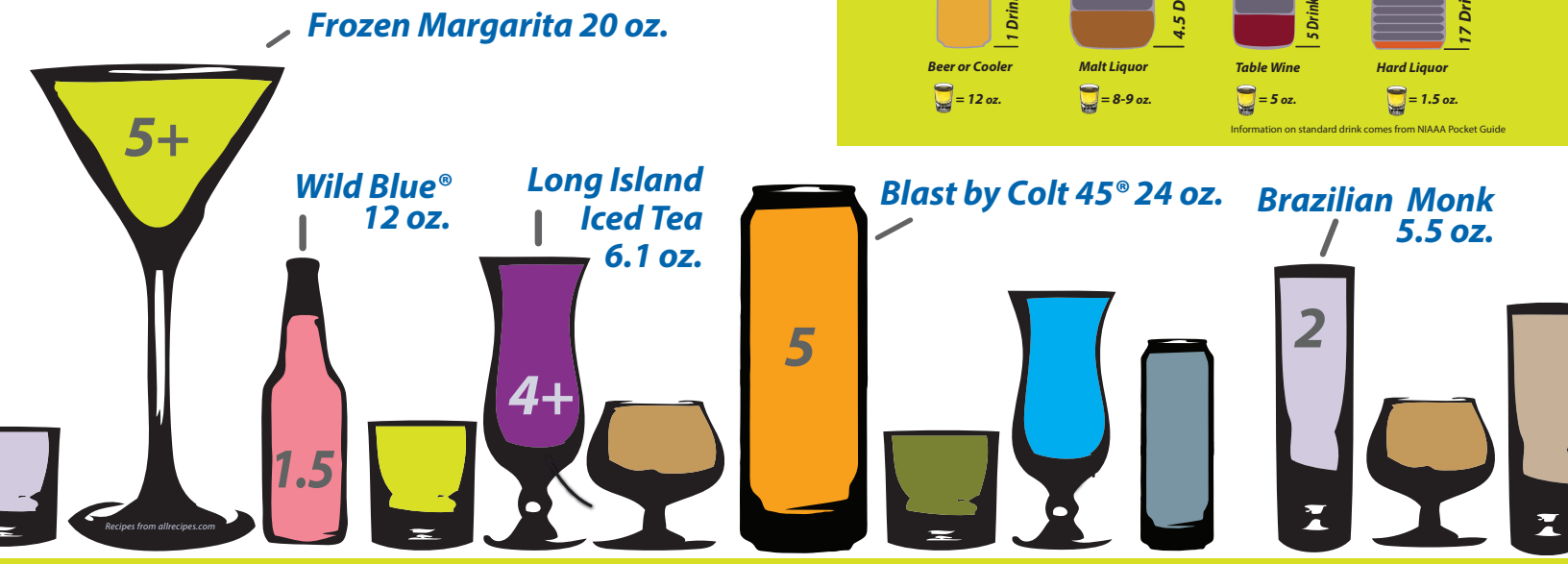
Alcohol By The Numbers

These days, having a "drink" can be deceiving. The alcohol content can vary drastically from one drink to the next.

A standard drink is any beverage that contains 14g of pure alcohol. Amounts vary depending on the percentage of Alcohol By Volume (ABV)

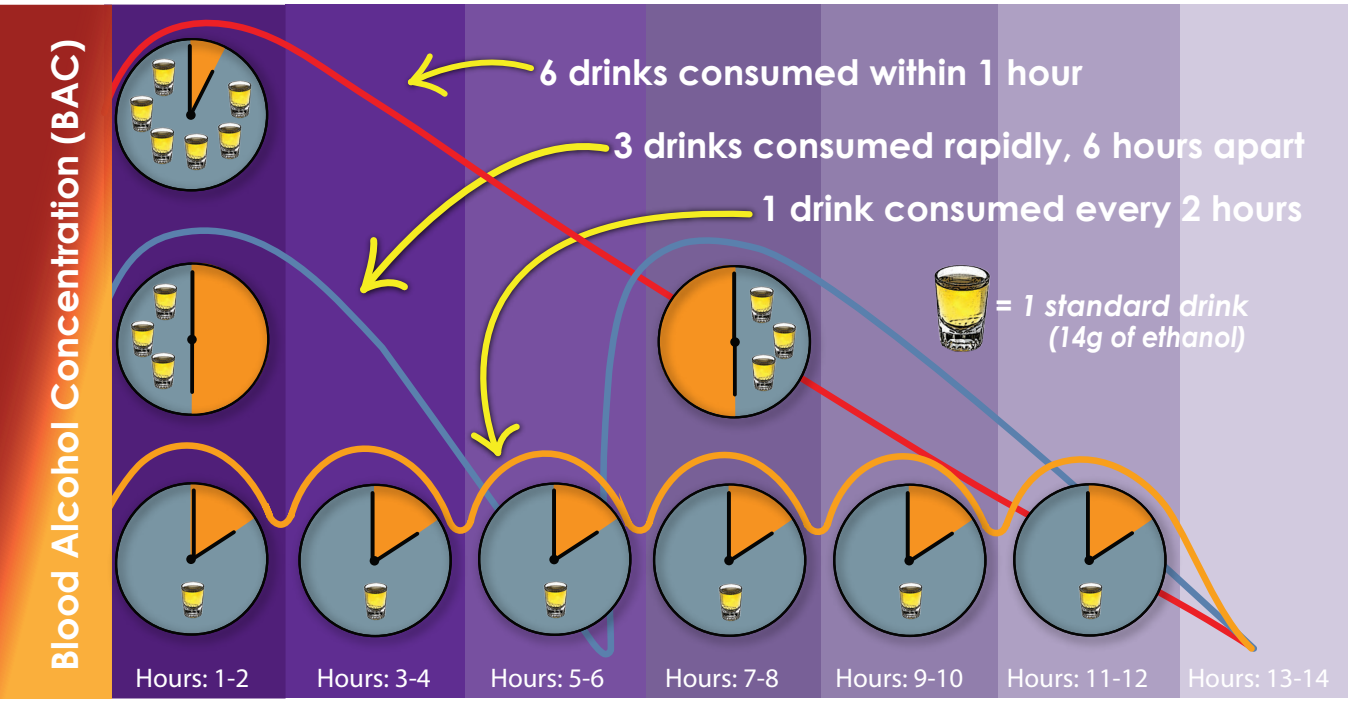


Information on standard drink comes from NIAAA Pocket Guide



Each container shows the number of standard drinks that each "drink" contains.

Blood alcohol concentration levels for 6 drinks within 12 hours can differ greatly depending on drinking behavior and individual metabolism.



The National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines binge drinking as a pattern of drinking that brings a person's blood alcohol concentration (BAC) to 0.08 grams percent or above. This typically happens when men consume 5 or more drinks, and when women consume 4 or more drinks, in about 2 hours.

F. Pragst et al. (2010) *For Sci Int*, 196, 101-110 doi:10.1016/j.forsciint.2009.12.028

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Alcohol Biomarkers: Wisconsin's Newest Approach to Address Roots of Repeat Drunk Driving

By USDTL Staff

A pilot project utilizing new tools called "alcohol biomarkers" is helping several counties in Wisconsin to more effectively address repeat intoxicated drivers and protect the public. "The use of alcohol biomarkers has enabled these counties to prevent OWI offenders from getting back behind the wheel before they have fully recovered, keeping Wisconsin streets safer," explains Dr. Pamela Bean, a consultant to the state of Wisconsin and the coordinator of these ongoing pilots.

Biomarker testing detects offenders' use of alcohol weeks after they ingest it, instead of only days. In Kenosha County, the biomarkers used are Ethyl Glucuronide (EtG), which is detected in fingernails and shows a window of approximately 90 days of use, and Phosphatidylethanol (PEth), which is detected in dried blood spots and shows a window of about 30 days of use. Guida Brown, Executive Director and one of the assessors at the Hope Council on Alcohol & Other Drug Abuse in Kenosha says, "The reason behind the testing is simple: people tend to minimize or be in denial about their problems with alcohol and other drugs, and these tools help us to address their drinking more objectively." Seventy-eight percent of the first 50 Kenosha drivers tested with biomarkers reported they had been fully abstinent when asked verbally if they had consumed alcohol within the 90 days prior to their assessments. Almost half of them tested positive for biomarkers. And, when tested again to rule out false positives, most of those who had tested positive had a reduced biomarker value at the re-test. "These results support suspicions of under-reporting at baseline and confirm a change in the drinking behavior after the brief intervention is conducted at follow-up," says Pamela Bean, pointing to one of the main benefits of biomarker testing.

Similarly, in Oneida, Forest and Vilas Counties the results of the nail and blood spot tests are helping identify those drivers most likely to stay sober during monitoring and to flag those who continue to drink heavily and therefore require more intense and longer monitoring. This use of individualized treatment allows staff to communicate more regularly with repeat offenders, motivating them to change their drinking behaviors and stay engaged longer in meaningful treatment. "It is extremely exciting to see people move from struggling with their addiction to become able to put a plan in place and watching them feel they have accomplished a year-long plan," says Jodi Baker, the assessor in charge of monitoring these drivers in these three northern counties. "Listening to providers talk about how they are using the biomarker information as a tool to address the seriousness of consumers' alcohol ingestion is another example of the benefits of this program," adds Baker.

In fact, the latest recidivism data obtained from repeat offenders in Waukesha County using the EDAC test shows that monitoring high-risk offenders for 300 days (10 months) including biomarker testing every three months cost these counties less than $300 per driver, and it prolongs the subsequent OWI arrest by an average of 300 days. Since each day in jail costs $90 in the state of Wisconsin, the costs of 10 months of biomarker monitoring is equivalent to 3 days in jail. "These tests results will allow us to develop predictive models of the risk of recidivism using open source software

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and neural net processing to classify patterns," says Brian Kay, a graduate student in Health Care Informatics at the University of Wisconsin in Milwaukee who is using the aggregated data from all counties combined to derive these high-risk profiles.

"Armed with this information, assessors and counselors are now better able to work with high-risk drivers, keeping them off the road, keeping them from reoffending, and helping them recover through more intense treatment and more frequent monitoring", says Tamara Feest, Behavioral Health Administrator for the Human Services Center in Rhinelander who wants to see that these programs become sustainable in Oneida, Forest and Vilas counties by 2014. "Developing evidence-based practices is helping these counties allocate resources more effectively and thus increasing public safety by attempting to decrease drunk driving," remarks Bean, who has seen these programs grow exponentially in Wisconsin since 2006, supported with funds from the state, the counties and the drivers themselves. This innovative approach also helps offenders in the program find a meaningful path to recovery, reducing the economic and human costs for everyone involved.

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