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Research
The Effect of a Community-Supported Alcohol Ban on Prenatal Alcohol and Other Substance Abuse

I wish to share the successful preliminary findings of a community-initiated fetal alcohol syndrome intervention in arctic Alaska.

High fetal alcohol syndrome incidence rate estimates have been made for American Indian and Alaska Native populations, who are perhaps the primary risk groups. Health professionals in Alaska’s most northern municipality, the North Slope Borough, have long been concerned about the potential for high fetal alcohol syndrome incidence and have aggressively addressed this issue with education as a part of prenatal care. In addition, alcohol was banned in all regional villages except the largest and most central village, Barrow. Despite these measures, alcohol abuse was still commonly encountered in the course of prenatal care. In 1994, Barrow, through a local referendum, became the largest community in Alaska to prohibit the possession of alcohol. Only one report has documented the outcome of alcohol prohibition in a northern community, and this report lacked specific data.

During the initial period (November 1994 through March 1995) of the alcohol ban in Barrow, self-reported alcohol and other substance abuse in all known women with viable pregnancies (n = 73) from six remote villages in arctic Alaska was compared with that of a similar group of women (n = 275) prior to the ban (January 1992 through April 1994). Both groups received the same standard prenatal care with fetal alcohol syndrome education.

During the first 5 months of the Barrow alcohol ban, relative to the prior period, regional alcohol abuse during pregnancy dropped significantly, from 42% to 9% (relative risk [RR] = 0.21, 95% confidence interval [CI] = 0.08, 0.55). Changes in tobacco, cocaine, marijuana, and amphetamine use were not significant. First-trimester alcohol abuse fell significantly, from 43% to 11% (RR = 0.25, 95% CI = 0.07, 0.94) (Figure 1). Second- and third-trimester abuse also fell, but not at significant levels.

The reduction in regional prenatal alcohol consumption (and, in effect, alcohol exposure to the fetus) during the initial period of the ban was substantial. The banning of alcohol in Barrow appears to have had a regional effect on prenatal alcohol abuse. This is most likely because of Barrow’s central location as a distribution point to other villages that also have

![Figure 1](image-url)

**FIGURE 1**—Change in regional prenatal alcohol abuse coincident with Barrow Alaska, alcohol ban, by trimester.
alcohol bans in place. During this time, no significant change in other prenatal substance abuse was evident.

The initial success just described is in sharp contrast to what has been written in the literature to date.3 The alcohol ban appears to be a very successful intervention and should be considered as a potential public health intervention in areas where fetal alcohol syndrome incidence is high. It will be of interest to see whether this early benefit of the ban is maintained.

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References

Research

Public and Private Academic Medical Partnerships in Improving Nutritional Management in Phenylketonuria

The Genetics and Nutrition Programs of the State of Louisiana Office of Public Health recently collaborated with the Human Genetics Program of Tulane Medical School in a study involving care of phenylketonuria patients. This study evaluated the effect of improving the delivery of nutritional services on dietary compliance of school-aged phenylketonuria patients. The impetus for carrying out this project came from a review of patient plasma phenylalanine laboratory results showing that more than 50% of Louisiana phenylketonuria patients 5 to 19 years of age maintained phenylalanine levels over the recommended treatment range of 700 µmol/L.1

Phenylketonuria is an autosomal recessive disorder characterized by deficient activity of the hepatic enzyme phenylalanine hydroxylase, which converts the essential amino acid phenylalanine to tyrosine.2 If a newborn remains untreated within the first few months of life, neurological problems, including mental retardation and seizures, can occur.3 Treatment includes a diet restricted in phenylalanine. As recommended by Koch and Wenz and practiced by most metabolic centers, we encourage patients to maintain the diet for life.4 This new standard of continuing the diet for life has major implications for dietary compliance, especially during the school years.4 Factors influencing dietary compliance include peer pressure, growing independence from the family, social events, the inconvenience of preparing special meals/snacks, and financial limitations.5,6

Newborns detected through the state-mandated newborn screening program are referred to the Tulane Human Genetics Program for a quantitative determination of phenylalanine/tyrosine levels.7,8 Medical and dietary management is provided by a biochemical medical geneticist and a licensed nutritionist at Tulane University. State regional nutritionists coordinate the treatment and management of the patient at the local level with the Tulane Center nutritionist.

Of the 60 phenylketonuria patients currently managed, 28 between the ages of 5 and 19 years were evaluated in this study. Questionnaires were sent to the regional nutritionists to identify problems in dietary compliance. Findings suggested that nutritionists and nurses needed guidance on age-specific counseling topics and clarification on specific actions and responsibilities assigned to each staff position within the care system. These findings and recommendations were reviewed with staff at a workshop and incorporated into a policy memorandum distributed statewide.

Monthly plasma phenylalanine values for each patient were reviewed 1 year before and 1 year after application of the new policies. A highly significant (P = .005) improvement was achieved in plasma phenylalanine levels in this group. This study showed that the management of phenylketonuria can be significantly improved by establishing protocols for staff at all levels providing dietary management.

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References
7. Louisiana Revised Statutes 40:1299.0–1299.3
8. Louisiana Administrative Code Title 48, part V, subpart 19, chapter 63.

Research

Bottled Water Use in an Immigrant Community: A Public Health Issue?

In response to the increasing prevalence of dental fluorosis, a change in fluoride supplementation guidelines for children1 would reduce the recommended fluoride dosage by 0.25 mg/day in several age groups. However, the focus of the guidelines remains on the fluoridation level of the water ingested by the child.

At the same time, awareness of potential problems, such as cryptosporidiosis,2,3 with public (and usually fluoridated) water supplies has decreased public confidence in them. Although of unproven safety, bottled water has gained in popularity. However, bottled water varies in fluoride content; 1994 data from manufacturers' self-reports and the Massachusetts and Rhode Island Departments of Public Health show most domestic and