

## Injury Prevention Awareness in an Urban Native American Population

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### ABSTRACT

The injury-related mortality rate for Native American children between the ages of 1 and 4 years is nearly three times that of the same age group in the general population. To assess injury prevention awareness in urban Native American families, we administered 39 age-appropriate questions from the Framingham Safety Survey to 50 Native American families and 100 other families and developed an answer scoring system to analyze and compare survey responses. Survey responses revealed that Native American families are less likely to keep small objects, household products, and medicines out of the reach of their children and to possess and understand the use of ipecac. Although urban Native-American families appear to be less aware of ingestion prevention practices than other urban families, these and other deficiencies in injury prevention awareness are more likely the result of factors related to their low-income status than to culturally based practices. (*Am J Public Health*. 1991;81:1466-1468)

### Introduction

Although nearly half of all Native Americans now live in urban areas, little data are available describing the health status for this segment of the population. Health statistics reported by the Indian Health Service often describe only reservation-dwelling Native Americans. Among Native American children between 1 and 4 years of age, injury-related deaths occur at nearly three times the rate of the same age group among the general population in the United States.<sup>1-4</sup> As with most accident-related injuries and deaths, a large portion of those involving Native American children may be preventable. Urban conditions such as poor housing, limited access to health care, inadequate day care, and increased exposure to physical hazards may further increase the risk of injury for urban Native American children.

Injury prevention awareness is commonly evaluated in the clinical setting by parent survey techniques such as the Framingham Safety Survey (FSS), recommended and distributed by the American Academy of Pediatrics (AAP) through The Injury Prevention Program (TIPP).<sup>5</sup> These survey methods have never been studied for their usefulness in identifying injury prevention awareness in the Native American population. In this study we attempted to determine whether parents in an urban Native American population are as aware of, and as likely to practice, injury prevention techniques as parents in other urban families.

### Methods

In this cross-sectional study, we enrolled 150 families with children between the ages of 1 and 4 during the 4-month period from June 1988 to September 1988. Fifty families were interviewed at each of

three clinics in the same urban area: (1) the Indian Health Care Clinic, a primary health care clinic for Native American families; (2) the Salt Lake City-County Health Department Clinic, a primary health care clinic for low-income families; and (3) a university-based private pediatric practice.

To assess injury prevention awareness in these families, a trained interviewer verbally administered 39 age-appropriate questions, taken from the FSS, to a parent from each enrolled family while the families were waiting at the clinic for a well-child or sick-visit appointment. A scoring method was devised to quantify the risk of injury. A score of 1 was given for low-risk, 2 for moderate-risk, and 3 for high-risk behavior. A total score was computed for each family, the lower total scores being associated with a lower risk of injury. The results were analyzed for statistical significance using the Student's *t* test, the Kruskal-Wallis test, and the Mann-Whitney test. Statistical significance was determined at the  $P < .05$  level.

### Results

Characteristics of the families in the sample are presented in Table 1. There was a significant difference in income between families at the three clinics ( $P = .001$ ), with families at the urban Indian clinic having a lower mean annual income than families at either of the other

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two clinics. When families were stratified into a low-income (<\$15 000/year) group and a higher income (>\$15 000/year) group, the Native American families within the low-income group had a significantly lower mean annual income than other families in the low-income group ( $P = .01$ ). Further income stratification was not performed because of limitations of the sample size.

Table 2 presents the item scores on questions where statistically significant differences existed between groups. Of the 39 injury prevention awareness questions, Native American families received higher risk scores on questions 1 through 4, even after controlling for income. Low-income families, in general, received higher risk scores on questions 1, 2, and 5 through 8. Higher income families received higher risk scores on questions 9 through 11.

Total scores are also presented in Table 2. A Native American revised score was computed, eliminating questions 1 through 4, to look for a cumulative injury prevention awareness deficiency among Native American families beyond the

|                                  | Income < \$15 000/y |                      | All Races           |                     |
|----------------------------------|---------------------|----------------------|---------------------|---------------------|
|                                  | Native Americans    | Non-Native Americans | Income < \$15 000/y | Income > \$15 000/y |
| Number of families               | 42                  | 45                   | 87                  | 63                  |
| Household income/y               |                     |                      |                     |                     |
| \$0–5000                         | 25                  | 19                   | 44                  |                     |
| \$5001–10 000                    | 15                  | 11                   | 26                  |                     |
| \$10 001–15 000                  | 2                   | 15                   | 17                  |                     |
| \$15 001–20 000                  |                     |                      |                     | 14                  |
| \$20 001–25 000                  |                     |                      |                     | 10                  |
| > \$25 000                       |                     |                      |                     | 39                  |
| Children aged 1–4 y              |                     |                      |                     |                     |
| Total children                   | 61                  | 67                   | 128                 | 78                  |
| Children/family                  | 1.45                | 1.49                 | 1.47                | 1.23*               |
| Previous accidents resulting in: |                     |                      |                     |                     |
| Visit to a clinic                | 3                   | 14                   | 17                  | 18                  |
| Visit to an emergency room       | 8                   | 16                   | 24                  | 16                  |
| Admission to a hospital          | 1                   | 4                    | 5                   | 2                   |

\* $P = .03$ .

questions where statistically higher scores were found. To create a similar measure among all low-income families, a low-income revised score was computed, eliminating questions 1, 2, and 5 through 11.

## Discussion

After controlling for income, our data revealed four items on which low-income Native American families received signif-

| Questionnaire Item  | Income < \$15 000/y |                      | P Value | All Races           |                     | P Value |
|---|---------------------|----------------------|---------|---------------------|---------------------|---------|
|   | Native Americans    | Non-Native Americans |         | Income < \$15 000/y | Income > \$15 000/y |         |
| 1. Do you have ipecac in the home?  | 2.81                | 2.04                 | .0001   | 2.41                | 1.67                | .0001   |
| 2. Do you know how to use ipecac?   | 2.76                | 2.07                 | .0004   | 2.40                | 1.67                | .0001   |
| 3. Do you keep plastic wrappers, bags, balloons, peanuts, and other small objects out of the reach of your children?                            | 1.35                | 1.06                 | .02     | 1.21                | 1.21                | NS      |
| 4. Do you keep household products, medicines (including baby powder, aspirin, and iron), and sharp objects out of reach and in locked cabinets? | 1.10                | 1.0                  | .04     | 1.05                | 1.10                | NS      |
| 5. How frequently do you check the heating system in your home?   | 1.69                | 1.56                 | NS      | 1.62                | 1.16                | .0003   |
| 6. Do you have working fire extinguishers in the house?   | 2.52                | 2.51                 | NS      | 2.52                | 2.08                | .0051   |
| 7. Do you have smoke or fire detectors in the house?  | 1.71                | 1.67                 | NS      | 1.69                | 1.25                | .0025   |
| 8. What type of car seat do you use when your children ride in the car?   | 2.02                | 1.84                 | NS      | 1.93                | 1.64                | .0132   |
| 9. Do you have a screen for the fireplace?  | 1.14                | 1.24                 | NS      | 1.19                | 1.51                | .0004   |
| 10. Are any of your babysitters less than 13 years old?   | 1.19                | 1.33                 | NS      | 1.26                | 1.57                | .02     |
| 11. Do you keep guns or air rifles in your house?   | 1.04                | 1.17                 | NS      | 1.12                | 1.67                | .0001   |
| Total score (all 39 questions)  | 59.10               | 56.70                | NS      | 57.86               | 54.95               | .0047   |
| Native American revised total score <sup>a</sup>  | 51.07               | 50.53                | NS      |                     |                     |         |
| Low-income revised total score <sup>b</sup>   |                     |                      |         | 41.75               | 40.72               | NS      |

Note. 1 = low risk, 2 = moderate risk, 3 = high risk. NS = not significant ( $P > .05$ ).  
<sup>a</sup>Native American revised total score = total score – questions 1–4.  
<sup>b</sup>Low-income revised total score = total score – questions 1, 2, and 5–11.

icantly higher scores than other low-income families. These four items are all related to ingestion events and reveal a situation where families are lacking understanding of both prevention and intervention strategies in this specific area. Because of the significant difference in income between Native American and other families, a difference that persisted even within the low-income stratum, we cannot be sure that even these four indicators of relative deficiencies in injury prevention awareness would not have been eliminated with a larger sample size including more "very-low-income" controls.

Poverty alone is known to be associated with an increase in injury-related deaths.<sup>6-8</sup> When compared with the higher income group, low-income Native American families displayed other deficiencies in injury prevention awareness that were common to all low-income families when compared with the higher income group. Although income bias may exist in some of the questions, the questions still reveal situations where lack of money or lack of control over housing conditions leaves a family unable to comply with injury prevention strategies such as regularly checking the heating system, using smoke detectors, and possessing a fire extinguisher. The lack of significant differences in low-income revised scores leads us to conclude that, beyond the differences revealed by individual items, no cumulative difference exists in injury prevention

awareness between the low-income and higher income groups.

Care must be taken when interpreting the responses to certain items. For example, the question revealing less awareness of car seat type among low-income families may reveal a higher use of borrowed or handed-down car seats in these families, or alternatively may actually suggest a lack of confirmation regarding the family's possession and use of a car seat. Furthermore, in many instances, the "correct" response is well understood but may not actually be practiced. This suggests the possibility of obtaining falsely reassuring responses. Therefore, while responses indicating a lack of injury prevention awareness may provide guidance to the clinician in focusing health education strategies with a particular family, "correct" responses may not be enough to allow the clinician to make presumptions regarding the family's compliance.

We have demonstrated that, in families using an urban Native American clinic, there is less awareness of ingestion-related injury prevention and intervention strategies than in families using other urban clinics, although our study population was not large enough to completely eliminate income as an explanation for this difference. As members of the larger low-income urban population, urban Native American families revealed other deficiencies in injury prevention awareness or practice when compared with higher income families. Factors contributing to the

increased risk of injury-related morbidity and mortality among Native American children seem to be more strongly associated with economic conditions than culturally based differences in parenting in the urban families we studied. □

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