

*in 2000*  
 $= P(\text{Pub} | \text{Nat})$

Health Insurance Eligibility and Coverage by Parental Immigration for March 2000 and 1996

	March 2000		March 1996	
	Native born Parents	Non Native born parents	Native born Parents	Non Native born parents
% of children with Public Health Insurance	20%	30%	20%	27%
% of children with Private Health Insurance	70%	50%	72%	47%
% of children Eligible for Public Health Insurance	40%	60%	30%	40%
% of Children in these families	80%	20%	82%	18%

$= P(\text{elig} | \text{Nat})$

$\rightarrow P(\text{non Nat})$

Source: Current Population Survey Data

A federal committee is examining the success of public insurance programs designed to expand public health care coverage for children. States implemented the expanded programs in the late 1990s. One concern has been whether the programs have reached the children of immigrant parents (“non-native born” parents) who make up about 20 percent of all children.

The table above shows public and private health insurance coverage and public eligibility for children with native-born and non-native-born parents in the years 2000 and 1996. It also shows the percentage of children with native and nonnative-born parents in each year.

Please use the information in the table to answer the following questions.

**A. How many children are uninsured?** Calculate the proportion of children who have neither public nor private health insurance in 2000 separately for children with native and non-native born parents.



$$\begin{aligned} \text{Pr(no Ins|Native)} &= 1 - \text{P(Ins|Nat)} = 1 - \text{P(pub ins OR pvt|nat)} \\ &= 1 - (\text{P(pub|nat)} + \text{P(pvt|nat)}) \\ &= 1 - (.2 + .7) = .10 \end{aligned}$$

Note you can add the conditional probabilities here because (like fractions) they have the same denominator (NAT) and are mutually exclusive

$$\begin{aligned} \text{Pr(no Ins|nonNative)} &= 1 - \text{P(Ins|non Nat)} = 1 - \text{P(pub ins OR pvt|non NAT)} \\ &= 1 - (\text{P(pub| non NAT)} + \text{P(pvt| non NAT)}) \\ &= 1 - (.3 + .6) = .20 \end{aligned}$$

So 10 percent of kids with native born parents had no health insurance in 2000 and double that--20 percent—of kids with non-native born parents had no insurance.

**B. How many children are eligible for public insurance?** Calculate the proportion of all children eligible for public insurance (not separate by parental nativity) for 2000 and 1996.



$$\begin{aligned} \text{P(elig)} &= \text{P(elig and Nat)} + \text{P(elig and nonNat)} \\ &= \text{Pr(Elig|Nat)} * \text{Pr(Nat)} + \text{Pr(Elig|nonNat)} * \text{Pr(nonNat)} \end{aligned}$$

For 2000:  
 $= .40 * .80 + .60 * .20 = .44$

For 1996:  
 $= .30 * .82 + .40 * .18 = .32$

So, 44 percent of all children were eligible for public health insurance in 2000—way up from the 32 percent in 1996.

**C. What proportion of those eligible participated in public insurance in 2000?**

Write out the probability statement, then calculate the chances that a child who was eligible in 2000, participated in the public insurance program for children with native and non-native born parents separately. Also calculate the participation rate for the two groups in 1996. [You can assume that all of the participants were eligible for the program.]

$$\Pr(\text{ Pub Ins}|\text{Elig})= \Pr(\text{Pub and Elig})/\Pr(\text{Elig})=\Pr(\text{Pub})/\Pr(\text{Elig})=$$

[Note: I haven't written these out with the additional qualifier for Native or non-Native parents in both the numerator or denominator, but you could:

$\Pr(\text{Pub and Elig and Native} | \text{Elig and Native}) = \Pr(\text{Pub and Elig and Native}) / \Pr(\text{Elig and Native})$   
 And this would lead you to multiply both top and bottom by the  $\Pr(\text{Native})$  or  $\Pr(\text{nonnative})$  which would of course cancel out.

Native parents in 2000:            =0.2/0.4= .50  
 Non-native parents in 2000    =.3/.6=.50  
 Native parents in 1996:        =.20/.30=.67  
 Non-native parents in 1996:   =.27/.40=.68

So, the “take-up” rate in 2000 was about 50% for both children with native-born parents and those with non-native born parents. But the “take-up” rate had been higher—about two-thirds—for both groups in 1996.

**D. Using your calculations above and looking at the whole table, describe for the committee how insurance coverage has differed for children with native and non-native born parents. [Use only the space below.]**

Data on health insurance coverage for children in 1996 and 2000 shows the need for continued efforts at expanding participation for those eligible for public programs, with particular efforts for children of non-native parents.

**Many children remain without health insurance coverage.** Ten percent of children with native born parents had no health insurance in 2000, but the rate was double that--20 percent—for children with non-native born parents. These rates have changed only slightly since 1996 in spite of the broadening of eligibility for public insurance.

**Eligibility for public insurance increased significantly between 1996 and 2000.** In 2000, 44 percent of all children were eligible for public health insurance--up from 32 percent in 1996. And children of non-native parents had higher eligibility rates in 2000 (60 percent versus 40 percent for those with native-born parents).

**Participation in public insurance did not increase even in the face of expanded eligibility.** Participation rates for eligible children are similar for children with native and non-native parents (50 percent in 2000), but have not kept pace with the expanded eligibility.

