Differential Health Insurance Coverage within Families:

Evidence from the National Health Interview Survey.

By

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ABSTRACT

Differential Health Insurance Coverage within Families:
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This paper addresses health insurance in the U.S. from a family perspective using data from the 2004 National Health Interview Survey. To capture the complex configurations of health insurance among family members, families with 2+ members are characterized by whether members have comprehensive health insurance defined as: *uniformly insured* (all family members are insured with the same coverage and plan types), *patchwork insured* (all members are insured, but through different plan types), *insurance gaps* (some, but not all, members are insured), and *uniformly uninsured* (no one is insured). The problem of lack of health insurance at the family level is extensive—with 63.8 million Americans living in families in which one or more kin are uninsured (another 5.2 uninsured live alone), and 47.8 million Americans living in patchwork insured families—and related to family size and poverty. Net of individual level insurance status, family health insurance status is an important, though underappreciated, enabling factor in access to health care, especially for adults. Health policy that continues to frame lack of insurance coverage at the individual level will miss capitalizing on efficiencies of families in pooling and distributing resources.

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Tables 1-6
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Differential Health Insurance Coverage within Families:
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There should be little doubt that one of the problems with the American health care sector is

related to insurance. While health insurance can be a means for people to afford health care,

health insurance itself can be a costly investment regardless whether one actually accesses

medical care. Unlike other modern, industrial nations which rely on coherent, universal health

care or health insurance systems, the United States stands out for its piecemeal, incremental

approach which amalgamates public and private financing with variable eligibility criteria. The

lack of health insurance coverage and its consequences remain among the major challenges to

American public policy. As health insurance coverage is considered an enabling resource in

accessing medical care (Andersen 1995), the absence of (adequate) coverage is related to

reduced access, reduced treatment, and medical debt. In addition to the estimated 43.6 million

Americans (or 14.8 percent) without comprehensive health insurance (NCHS 2007), many

insured people face burdens related to *under*-insurance due to exclusions, waiting periods, and

affordability problems.

While the vast majority of the literature on health insurance is based at the individual

level, in this paper I address health insurance in the U.S. from a family perspective (IOM 2002a),

using data from the 2004 National Health Interview Survey (NHIS). Private and public health

insurances are typically accessed through a person's individual status (e.g., employment, age),

although familial ties (e.g., marriage, parenthood) can contribute to being insured. Thus, a

family may experience differentials in coverage among its members; some family members may

have comprehensive health insurance, while their immediate, co-resident kin may have none.

Role transitions can alter insurance access for the individual and for kin. Job change and divorce

can alter insurance eligibility. Retirement may necessitate a change from private health

insurance to Medicare for the retiree and from private sources to un-insurance for a spouse.
Other families may experience differential coverage through age and income-tested public
insurance extended to children, but not to parents. As premiums rise for employers and workers,
fewer employers offer family insurance (dependent coverage) while fewer employees can afford
family coverage. In addition, the decision to purchase private, non-group insurance is often a
family one, as Culter and Gruber (1997) note that insurance policies tend to be sold only for
individuals and for families, but not as separate policies for different family members.

After reviewing selected background literature about health insurance and families, I
describe my new family level health insurance measure and provide estimates for the number of
individuals and families across family health insurance status. I estimate health care costs and
analyze the determinants of family health insurance coverage status. Then, I consider whether
individual level health care access varies according to family health insurance status, net of own
coverage status and other controls, to determine whether the configuration of health insurance
within the family enables or inhibits access to care. Finally, I discuss some policy implications
of my results and consider the limitations of my analyses.

Background

Not all Americans have health insurance; annual estimates of the uninsured have topped
40 million or exceeded 14% over the past decade (Cohen & Martinez 2006; DeNavas-Walt, *et al.*
2006). Many Americans who *are* insured at a given point in time have experienced periods
during which they lacked such coverage (CBO 2003). Insured Americans obtain their health
insurance through a wide variety of means. Among those who have private health insurance, the
primary method of coverage is via an employer-based benefit plan which covers either the
employee or additionally the employee's dependents (DeNavas-Walt, *et al.* 2006). Most private,

employer-sponsored insurance is purchased via premiums paid through a combination of

contributions from the employer and the employee. Others acquire coverage through direct

purchase from an insurer via "individual" (versus group) plans. Public, government-sponsored

health insurance is another means of accessing insurance and, thereto the access criteria vary

considerably according to age-, disease- and means-tests as well as state of residence. Indeed,

many health scholars argue that there is little that is systematic about the U.S. health insurance

system (Weitz 2004).

Family level processes have figured prominently in health stratification studies since

Koos' (1967) "Regionville" study. Yet, the prevailing method of investigation within the health

policy arena has focused upon the health insurance status of the individual. However, people

access health insurance through individual _and_ through family ties. Private, employer-sponsored

health insurance typically can be extended to cover the spouse and other dependents of the

employed enrollee. Even within public insurances, such as Medicaid, means-tested eligibility is

measured through family size and family income. While a family-based perspective is beginning

to be recognized as an important dimension of America's health insurance crisis (IOM 2002a),

individual-based perspectives continue to dominate the research literature. National statistics

that only count the number of persons with or without insurance—a "head count" approach—

help sustain the concept of *equifinality*, that similar outcomes have the same consequence,

regardless of mechanism or means obtained. Within a family this principle operates when

families successfully provide health insurance for all members, but may of necessity provide that

coverage piecemeal.

As a material resource, health insurance coverage may be a marker of socioeconomic

status (Krieger *et al*. 1997). And as our nation begins to address population health inequalities,

health insurance is viewed as one of the mechanisms that shapes both disparities in health outcomes and disparities in health care (IOM 2002b). Family reproduces social and economic inequality as the primary institution for the pooling and distribution of limited resources, such as time and money, and access to external resources. Some families are better positioned to optimize their resources, while other families may experience greater challenges and/or inefficiencies in their allocation of resources. In addition to economic views that focus family relationships on the exchange of goods and services, family serves affiliative and regulatory functions as a means of social support and social control.

Health Insurance

Traditionally health insurance has served as a means for people to protect against the potential financial burden of future sickness (Starr 1982). If a sick person cannot work to contribute to the material well-being of his/her family, then the cost of sickness may be compounded by extra medical bills. In the current American context, health insurance serve may additional purposes. As employer-sponsored health insurance is an employment benefit, health insurance can be a means to compensate (and invest in) workers without directly raising their wages (Quadagno 2004). Health insurance can be a means for people to lower (or spread out) the costs of medical care visits and treatments. At the macro level, public insurance is a mechanism to assist vulnerable populations so that low income children and elders, for example, are not left to face the additional hurdle of sickness without allowances of some medical care. While health insurance coverage might help reduce population health disparities (DHHS 2000), it remains doubtful that affordable universal health coverage can eliminate socioeconomic inequalities in health (Feinstein 1993; Ross & Mirowsky 2000).

Health insurance coverage is considered an enabling resource in access to health care (Andersen 1995) and in access to quality health care (Hadley 2003). While appropriate and quality medical attention may not prevent[1] most people from getting sick, treatment can be crucial once a person falls ill. People with health insurance experience lower subsequent mortality than the un-insured (Rogers *et al*. 2000). However, medical care may not be the sole or primary mechanism through which health insurance coverage influences health outcomes. In cross-sectional analyses that disaggregate insurance types into private and public coverage versus no coverage, publicly insured working-age adults have been found to have worse health than the un-insured, while those with private insurance experience better net health than others (Ross & Mirowsky 2000; Hadley 2003). Selection into public insurance based on medical and poverty eligibility may partially account for this finding. Notably, longitudinal analysis of insurance and health status has shown that both private and public insurance may be more salubrious than none (Quesnel-Vallée 2004). Nevertheless, one mechanism whereby insurance influences health may be indirect by reducing families' economic hardship[2] (Ross & Mirowsky 2000).

Health Insurance for Children & Parents

The year 1997 saw the national implementation of the State Children's Health Insurance Program (S-CHIP) which allowed states to extend their Medicaid programs to include health insurance coverage for children in low income (but not poor) families. S-CHIP was partially viewed as a step in the incremental expansion of health insurance coverage (towards universal coverage). By insuring more children, but not their parents, S-CHIP helped create greater heterogeneity of insurance statuses within families. Several lines of research investigated

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[1] Vaccinations would be an exception.
[2] The primary reasons uninsured people cite for lacking health insurance are the high cost of premiums and the absence of the employer-sponsored benefit (CBO 2003).

whether among insured children, the insurance status of their parents mattered to their health and health care access (IOM 2002a; Davidoff *et al*. 2001; Davidoff *et al*. 2003; Olson *et al*. 2005; Guendelman *et al*. 2006). For example, previous research on children indicates that, especially among low income children, having uninsured parents reduced access to care (Davidoff et al. 2003; Guendelman *et al*. 2006).

The 2002 Institute of Medicine report, *Health Insurance Is a Family Matter,* included analyses of sub-families from the Current Population Survey (IOM 2002a). Families were characterized by whether all, some or no members had health insurance coverage at any time during a one year period. The report focused on outcomes for children, in terms of their well-being, insurance status and access to care. Findings indicated that children's parents' insurance status mattered for their health status and medical access. As parents act as agents for their children's health care access and treatment, the resources available to parents facilitate their coordination of health services for their offspring.

Family Health

A large, albeit disparate, body of research has identified family processes in shaping health outcomes and behaviors. A family's material resources and its psycho-social resources figure in the health and well-being of its members (Mare and Palloni 1988; Wilson 2001; Stolzenberg 2001; Westman & Etzion 1995). Not only contagious illnesses are transmitted within families, but also family members learn (and reinforce) health and illness behaviors from each other (Umberson 1992; Burke *et al*., 1999). In addition to mutual influence among kin, the health status and behaviors exhibited within the family comprise the health environment for each family member, as in the case of smoking and exposure to second-hand smoke. Illness behaviors (Mechanic 1995) including anticipated, planned and realized doctor visits may conform to

similar mechanisms of social control and mutual influence. Where access to care is inhibited by uninsurance and under-insurance, fully insured kin may respond by avoiding health care encounters.

Research Questions

While individual-level health insurance statistics abound, little is know about health insurance at the family level, other than the limited research on parent-child interactions discussed above. This paper addresses: how extensive is the problem of lack of health insurance at the family level? In particular, among insured families, how many families insure members through different sources? What are the patterns in family health insurance coverage status? What are the consequences—for children and for adults—of the lack of family health insurance coverage? In particular, does family insurance coverage matter for individual family member's access to care?

Data

I examine health insurance coverage patterns within families using the 2004 National Health Interview Survey (NHIS), which annually collects extensive information on plan types, coverage lapses and premiums for family members in a nationally representative sample of the civilian, community-dwelling U.S. population. The NHIS can be thought of as a set of samples and surveys, as it includes separate core interview schedules for all family members, for a randomly selected focal adult, and for a randomly selected focal child (Table 1). My sample includes all persons in families with at least two members (n=82,926), which represents 87.8 percent of all persons in the 2004 NHIS. Results are presented at the person- and the family-level. Family-level analysis is based on 25,905 families with at least two members. Additional

analyses are based on the two focal samples: adults ages 18 and older (n=31,130 to 31,134); and

children ages 0-17 years (n=12,406 to 12,409).

Families

In this paper family is defined using the NHIS definition of family:

an individual or group of two or more related persons who are living together in the same occupied housing unit…In some instances, unrelated persons sharing the same household may also be considered as one family, such as unmarried couples who are living together (NCHS 2005:19).

I analyze families with two or more members, including single- and multi-family households and

multiple generations. Other definitions of family may be more restrictive, if based on legal

dependency, or more detailed, if based on subfamily definitions. Analysis of family health

insurance using the Current Population Survey (IOM 2002a) was based on subfamilies in which,

for example, within a single household, parents with children were defined as one family and the

co-resident parents of the adult children (the grandparents) were defined as a second, separate

family (p. 29). Employer-sponsored health insurance benefits are based on dependency concepts

which are not directly measured in the NHIS. Because so many interview questions and

concepts in the NHIS are based upon its definition of family (e.g., income and out of pocket

costs), use of alternative definitions of families based on subfamily or other dependency was

precluded. The NHIS definition of family may produce more heterogeneity within families

relative to other approaches to family reckoning, nevertheless NHIS-defined family members are

co-residents and thus engage in resource sharing. More restricted definitions of family may

mask some of the consequences of un-insurance as explored here.

Measures

Health Insurance

The NHIS categorizes each individual by their health insurance status, so that current

coverage status and type of insurance plan can be compared across family members.[3]

Analytically at the individual level, each person is characterized by whether he or she has *private*

health insurance coverage (the reference group), *public insurance* (included as a dummy

variable) or *no health insurance coverage* (a dummy variable).

Family health insurance coverage status, is based on whether individual co-resident

family members (in families with 2+ members) have comprehensive health insurance defined as:

uniformly insured, in which all family members are insured with the same coverage and plan

types; *patchwork insured*, in which all family members are insured, but through different plan

types; *insurance gaps*, in which some, but not all, family members are insured; and *uniformly*

uninsured, in which no family members are insured. This measure captures some of the complex

configurations of health insurance among family members.[4] Note that the patchwork insured

group may under-represent such families because this analysis relies on public use data

necessitating the matching of coverage and plans based on the coded characteristics of plan types

and not directly on plan names and insurance card information. Families that could not be

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[3] Type of plan includes Medicare, Medicaid, State Children's Health Insurance Programs (S-CHIP), other public plans, military (TriCare plans, Veteran's Administration, and Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMP-VA)), other government-sponsored plans, and private plans. Interviewers collect plan names and ask to review insurance cards. NCHS uses this information in its data editing protocol, and codes private plans to 35 unique plan types. Single service plans and Indian Health Service (IHS) use are excluded from the insurance status variables in this paper, as they are excluded from federal estimates (NCHS 2005). The IHS exclusion is also justified by the NHIS sample coverage which includes few Native Americans/American Indians, the majority of whom are urban and/or reside far from IHS hospitals and clinical services. Also several states extend Medicaid and S-CHIP eligibility to IHS eligible children, indicating that IHS coverage falls short of comprehensive coverage (Jacobs-Kronenfeld 2007).
[4] Reliance on point in time measures of current family-level health insurance status can lead researchers to miss the dynamic dimensions of coverage. Since individuals and families may gain, lose, and/or switch coverage over time, a second family-level measure of health insurance status, s*tability of coverage,* combines information from the complexity variable with health insurance status over the past 12 months and will be analyzed in a subsequent paper.

assigned to one of the four categories of *family health insurance status* are assigned to a separate missing category.

Demographics

Family insurance status may be correlated with the demographic characteristics of families, including: *income relative to needs* (the ratio of reported family income in the previous year to the official poverty thresholds for 2003 based on family size and the number of children in the family)[5]; *family type* (adults only family; families containing parents and children, based on biological, adopted, or step relationships; families containing parents and children along with other adults; families containing adults who are not parents and children without their parents; and missing family type); *marital family* (whether the family contains a married couple); *employed family* (whether the family contains gainfully employed members); *family size* (the number of family members); and age distribution (counts of the *number of elders* (family members age 65+) and of the *number of youth* (family members ages 0 through 17 years)). Age distribution measures in individual level analyses include dummy variables for whether the family includes *any other elders* (another person age 65+) or *any other youth* (another person age 0-17).

Individual level demographic characteristics included as controls are: *age* (a continuous measure in years), dummy flags for *being an elder* (age 65+) and *being a youth* (age 0-17), *gender* (a dummy variable for being female), *race* (dummy variables for being African American/Black and for being Other race with white as a reference), *ethnicity* (a dummy variable for being Hispanic/Latino), being *married*, and being *employed*.

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[5] Based on the NHIS family-level public use categorical variable RAT_CAT, I convert *income relative to needs* to a continuous measure based on the midpoint of each categorical interval.

Family Costs

Insurance premiums paid annually are calculated for each family by summing premium amounts across family members. The NHIS collects exact dollar amounts (top coded at $20,000 per plan) for premiums paid for each plan and those figures are annualized and included for each person covered by the plan. A maximum of four plan premiums per family were included in the NHIS public use data.[6] Premiums were divided by family size so that premium amounts per person could be compared. Premium amounts do not include employer-subsized amounts.

In a single NHIS question, respondents reported annual amounts the family spent on medical care and dental care, (excluding premiums, over the counter drugs, premium amounts and reimbursed costs) using dollar ranges ($0, <$500, $500-$1,900, $2,000-$2,999, $3,000-$4,999, and $\geq$$5,000). Each dollar interval was assigned an imputed dollar amount, based on the actual reported amount or the interval mid-point. The top open-interval imputation was calculated several different ways, with $6,000 imputed for calculation purposes here.

Access Outcomes

While both family-level and individual-level outcomes may be sensitive to family-level health insurance status, as my concern in this paper is with the influence of family on the individual, my analytic health outcomes are at the individual level. In the NHIS access to care is assessed via multiple measures at both the individual and the family levels. *Unmet medical care need* during the past 12 months is measured for all family members (using a family level screener) based on whether medical care was delayed or foregone because of worry about the cost or because the family could not afford it. More specific access to health service needs are included in the NHIS focal child and focal adult interviews. These *unmet health needs* are

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[6] As premium amounts were duplicated across family members' records for some family members on the same health plan, exact dollar duplicate amounts were excluded from this calculation.

measured by three questions about being unable to afford a needed service in the past 12 months, including: prescription medicines, mental health care of counseling, and dental care (including check-ups).[7]

Among focal adults and focal children having *non-cost delays in care* are determined through a series of items on whether medical care was delayed due to: being unable to get through on the telephone, being unable to schedule an appointment soon enough, having to wait too long at the office, finding the office/clinic closed upon arrival, or not having transportation. These items represent a mixture of characteristics of doctor's offices/clinics and a family's capacity to access medical services. All access outcomes are analyzed as dummy indicators for having any of the needs or delays versus not. Cases where need or delay were undetermined are excluded as missing for that measure.

Analytic Techniques

All estimates are produced in Stata/SE 9.2 (StataCorp 2006), weighted and corrected for the complex sampling design in the NHIS. At the family level, complexity of current *family health insurance status* is predicted based on family characteristics using multinomial logistic regression which produces three separate equations based on contrasts of uniformly insured families, of families with insurance gaps, and of patchwork insured families versus uniformly insured families. Individual level analyses for having an *unmet medical care need,* having *unmet health needs,* and having a *non-cost delay in care* are produced using binomial logistic regression.

Results

Complexity of current family health insurance coverage is categorized as: *uniformly insured* (all family members are insured with the same coverage and plan types, 57.3 percent of

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[7] For children ages 0-1 years, only the prescription medicine question is asked.

multi-person families); *patchwork insured* (all family members are insured, but through different coverage or plan types, 20.2 percent); *insurance gaps* (some, but not all, family members are insured, 16.1 percent); and *uniformly uninsured* (no family members are insured, 6.4 percent) (Figure 1). Combining estimates for uniformly uninsured and insurance gaps at the individual-level, some 63.8 million Americans live in 17.2 million multi-person families in which one or more kin are uninsured. (If people in single person families are additionally included, nearly 69 million Americans are themselves uninsured or live with someone who is.) About 15.5 million families are patchwork insured; they insure all family members but through different sources and plan types, representing 47.8 million people.

While 14.5 percent of all persons in multi-person families have no health insurance (Table 2), 25.6 percent (0.064 + 0.192) live in families in which at least one family member is uninsured. The similar proportions for all adults are 16.3 percent uninsured and 23.3 percent living with someone who is uninsured (and for children are 8.9 percent and 26.0 percent, respectively). Table 2 also provides descriptive statistics at the individual and family level. In terms of access to care, 7.7 percent of all persons in multi-person families experienced an *unmet medical care need*. Among the focal adults 15.5 percent had an *unmet health need* and 9.8 percent had a *non-cost delay in care*. For focal children 7.8 percent had an *unmet health need* and 8.2 percent had a *non-cost delay in care*.

Family Health Insurance Status

Results of the multivariate multinomial logistic regression model predicting *family health insurance status* (Table 3) show that it is sensitive to multiple family level characteristics. Families with higher income relative to needs are more likely to uniformly insure their members compared to all other insurance statuses. As income (relative to needs) increases, the log odds of

uniform uninsurance decrease (O.R. = 0.51). A smaller contrast for relative income distinguishes families with gap insurance (O.R. = 0.58) and the smallest contrast distinguished patchwork insurance (O.R. = 0.89) versus uniformly insured families. Smaller families are more likely to uniformly insure its members compared to all other insurance statuses, with insurance gap families predominating in large families (O.R. = 4.81). However, the age composition of families appears to matter differentially across the different insurance types. More children in the family reduces the odds being a uniformly uninsured family (O.R. = 0.31), being a family with insurance gaps (O.R. = 0.21), and being in a family with patchwork insurance (O.R. = 0.39) relative to being uniformly insured. Having elders in the family reduces the odds being a uniformly uninsured family (O.R. = 0.15) and being a family with insurance gaps (O.R. = 0.72) relative to being uniformly insured, but increases the odds of being a family with patchwork insurance (O.R. = 1.51). For each additional member age 65 or older, the odds of the family insuring members through different means increase 51 percent, net of other controls in the model. This association may result from Medicare age eligibility and age differentials within married couple families.

Family type also significantly predicts a family's insurance configuration. Compared to the reference group family type containing parents and children, adults-only families are more likely to be uniformly uninsured (O.R. = 1.71) or to insure all family members but through different means (O.R. = 1.63) than to uniformly insure all members. Families with parents, children and additional adults have a 30 percent lower odds of being uniformly uninsured (O.R. = 0.70) and a 26 percent lower odds of having insurance gaps (O.R. = 0.74) than families comprised by parents and children. Compared to the reference group families, families made of up children and adults who are not their parents have 3.8 times the odds of being uniformly

uninsured, five times the odds of insuring some but not all family members, and nine times the odds of insuring all family members but through different means than being uniformly insured. The marital and employment statuses of family members also appear related to family health insurance coverage status. Marital families have lower odds of being uniformly uninsured (O.R. = 0.27), having insurance gaps (O.R. = 0.12), and insuring all members but through different means (O.R. = 0.19) than being uniformly insured. The strength of these associations, net covariate controls, indicate that insurance eligibility can be one of the benefits of marriage and that our health insurance system is tied to the social institution of family. Working families have higher odds of being uniformly uninsured (O.R. = 1.32), having insurance gaps (O.R. = 1.51), and insuring all members but through different means (O.R. = 1.46) than being uniformly insured.

What sorts of health-related financial burdens do families face according to family coverage status? Only families that insure any members pay insurance premiums, but all families face some out of pocket health costs. On a per person basis, families that insure all members pay statistically the same estimated premiums regardless whether members are insured through different or uniform means ($596 and $602, respectively) (Figure 2). Yet, in terms of out of pocket costs, patchwork families, who insure all members but through different means, pay more per person than uniformly insured families ($552 and $482, respectively). Families with uninsured members incur health expenses that they pay out of pocket. Uniformly uninsured families pay $434 and families with insurance gaps pay $383 out of pocket per person. All estimates of out of pocket expenses on health are statistically different across the four family health insurance groups.

Access Outcomes

Turning to some of the individual-level access consequences of family health insurance status, a multivariate binomial logistic regression of having an *unmet medical care need* during the past 12 months was fit for persons of all ages in families with two or more members (Table 4). Here, the outcome is whether the person delayed or went without needed medical care because of financial worries, and the model contains both family-level and individual-level predictors. An individual who lacks health insurance coverage has over five times (O.R. = 5.69) the odds of having an unmet medical care need than someone who is privately insured, while a publicly insured person has a 27 percent higher odds (O.R. = 1.27) of having such a need. In addition to one's own health insurance status, family health insurance status was significantly related to having a unmet medical care need net of other factors. Among insured individuals, people in families whose members are insured but through different means have a 71 percent higher odds of having an unmet medical care need than people in families whose members are insured through the same means. When considered along with individual insurance status and net of other controls, uninsured people in uniformly uninsured families have 7.91 times (5.69 X 1.39) the odds of having an unmet medical care need than privately insured people in uniformly insured families. Uninsured people in families in which some members are insured have 9.73 times (5.69 X 1.71) the odds of having an unmet medical care need than privately insured people in uniformly insured families. And, privately insured people in families in which some members are uninsured have 1.71 times the odds of having an unmet medical care need than privately insured people in uniformly insured families.

Among individual-level predictors, age significantly predicts having a unmet medical need such that for each additional year of age the odds of having such a need increase one

percent (O.R. = 1.01). However, there are some discontinuities by age as dummy flags for being

an elder (O.R. = 0.38) and for being a youth (O.R. = 0.72) decrease the odds of having an unmet

medical care need. On average net of other controls, women have a 24 percent higher odds of

having an unmet medical care need than men. By racial group compared to whites, African

Americans have a 33 percent lower odds (1.00 – 0.67) of having an unmet medical care need and

other race persons have a 47 percent lower odds (1.00 – 0.53) of having an unmet medical care

need. Compared to non-Hispanics, Latinos have a 49 percent lower odds (1.00 – 0.51) of having

an unmet medical care need. Family-level characteristics also significantly predict unmet

medical care need, net of individual-level characteristics. People in families with higher

incomes-to-needs ratios are less likely to have any unmet medical care need. People in larger

families and who co-reside with more elders are less likely to have any unmet medical need.

However, net of other predictors, family type was unrelated to unmet medical need.

Adults

For focal adults, separate logistic regressions are fit for *unmet health needs*, based on

being unable to afford specific health services, and for having a *delay in care due* to non-cost

related reasons (Table 5). (A similar pair of models are shown for focal children in Table 6 and

discussed below.) The *unmet health needs* measure captures a different aspect of affordability

than the *unmet medical care need* measure (discussed above). Unmet medical care need

identifies delaying or being unable to have a doctor's visit because of cost, while unmet health

needs covers additional services (prescription drugs, mental health services and dental visits) that

might be needed but are unaffordable. While the unmet need outcomes address lack of

affordability, non-cost delay in care is related to mobilizing and organizing non-monetary

resources such as time and information.

Adults who were uninsured had 3.53 times the odds of having an *unmet medical need* than privately insured adults, controlling other variables, while publicly insured adults had 1.92 times the odds of those with private insurance (Table 5). Among privately insured adults, adults in patchwork insured families had a 57 percent higher odds of having an unmet medical care need than privately insured people in uniformly insured families. When considered along with individual insurance status and net of other controls, uninsured adults in uniformly uninsured families had 4.77 times (3.53 X 1.35) the odds of having an unmet medical care need than privately insured people in uniformly insured families. Uninsured adults in families in which some members are insured had 6.78 times (3.53 X 1.92) the odds of having an unmet medical care need than privately insured adults in uniformly insured families. And, privately insured adults in families with insurance gaps had 1.92 times the odds of having an unmet medical care need than privately insured adults in uniformly insured families. This pattern is quite similar to the one detected in the model of unmet medical care need for persons of all ages (Table 4).

While age in years was not associated with having an unmet health need, being elderly (compared to being aged 18 – 64) lowered the odds (O.R. = 0.49) of having an unmet health need, net of other predictors. Women had a higher odds (O.R. = 1.44) than men of having an unmet health need. Relative to whites and net of controls, African American adults had a 21 percent lower odds (1.00 – 0.79) and other race adults had a 50 percent lower odds (1.00 – 0.50) of having an unmet health need. Based on this model, compared to non-Hispanics, Latinos were less likely (O.R. = 0.61) to have an unmet medical need. Turning to other family-level predictors, higher relative incomes were associated with lower odds of unmet health needs. While family type, family size and the presence of youth in the family were not statistically significant, the presence of elder family members lowered the odds (O.R. = 0.69) of having an

unmet health need. Notably, family health insurance status was related to unmet health needs among focal adults.

Turning to the *non-cost delay in care* outcome, for individual-level health insurance, having no health insurance coverage versus being privately insured was unrelated to having a non-cost delay in care. Publicly insured adults had a 47 percent higher odds of having a non-cost delay in care than privately insured adults. As before, family health insurance status adds to the model, net of individual level health insurance status. Among privately insured adults (who live with insured family members), adults in patchwork insured families had a 22 percent higher odds of having a non-cost delay than those in uniformly insured families. Privately insured adults in families with insurance gaps had 1.23 times the odds of having a non-cost delay than privately insured adults in uniformly insured families. The absence of statistical significance for the coefficients for being uninsured and for living in a uniformly uninsured family may be related to: uninsured people may be more likely to use emergency room departments or urgent care clinics which have more continuous hours of operation; or once an uninsured adult has decided to go to the doctor, he or she will make certain that the facility is open and available for such a visit; or uninsured adults may not opt to visit the doctor in the first place.

Similar age and gender patterning of focal adults' non-cost delays in care were detected as in the unmet health need outcome. Being elderly and being male lower the odds of having a non-cost delay. However, no racial group or ethnic group patterns are evident controlling other variables. At the family level, income relative to needs, family size, age composition and family type were not related to delay in care in this multivariate model.

Children

In similar multivariate analyses for focal children (Table 6), many fewer statistically

significant results were detected in the multivariate models of focal children's access to care.

Uninsured children had 4.23 times the odds of having an *unmet health need* than privately

insured children. Net of controls, there were no differences between publicly and privately

insured children for this access outcome. For the family health insurance status outcome, there

were no statistically significant contrasts net of individual insurance status and other controls.

For each additional year increase in age the odds of having an unmet health need

increased (O.R. = 1.09). In contrast to the adult findings, girls had a 20 percent <u>lower</u> odds (1.00

– 0.80) of having an unmet health need than boys, net of controls. Compared to white youth,

African American youth had a 33 percent lower odds (1.00 – 0.67) of having an unmet health

need. At the family level, as income relative to needs increases the odds of having an unmet

medical need decrease. Family size, age composition, family type and employment were not

related to children having an unmet medical need in the multivariate context. Living in families

with married persons reduced the odds of having an unmet health need (O.R. = 0.66).

Turning to the analysis of focal children's *non-cost delays* in care, publicly insured

children had 1.90 times the odds of having a delay than privately insured children. Uninsured

children had 1.77 times the odds of such a delay compared to children with private insurance.

For the family health insurance status outcome, there is only one statistically significant contrast

for focal children: between uniformly uninsured and uniformly insured families. However, when

individual and family health insurance status are considered together, uninsured children in

uniformly uninsured families had a eight percent <u>lower</u> odds (1 – (1.77 X 0.52)) of having a non-

cost delay compared to privately insured children in uniformly insured families.

While Latino children were more likely (O.R. = 1.48) than non-Hispanic children to have a non-cost delay in care, net of the other variables, no other individual-level characteristics were related to this outcome. At the family level family size and age composition similarly showed no relationship. Higher family incomes (relative to needs) lowered the odds of having a non-cost delay. Compared to children living in parent-child only families, children who additionally resided with other non-parent adults had a 26 percent higher odds of experiencing a non-cost delay. Living with married adults and with employed adults lowered children's odds of having a delay (O.R. = 0.77 and O.R. = 0.75, respectively).

Discussion

The problem of lack of health insurance coverage touches more Americans than only those who individually lack coverage. An estimated 63.8 million people live in families in which someone was uninsured, representing about 28 million families. The patterning of family health insurance status is unsurprising; there are more insurance gaps and un-insurance in lower income families and in larger families – especially families with more working age adults. Families that insure all members, but through different means, are larger, older and poorer than families that uniformly insure everyone. While families in the patchwork and uniformly insured groups pay the same amount in premiums, the out of pocket costs for care are greater in families that insure all members, but through different means. As patchwork insured families are also poorer than families with uniform insurance, they are likely to experience insurance-related economic hardships, which may in turn put them at higher risk for sickness (Ross & Mirowsky 2000).

Health insurance coverage figures prominently in mitigating unmet needs and delays in care. However, a person's individual health insurance status is not the only way in which

insurance matters. The health insurance status of one's co-resident family members is additionally relevant in shaping one's access to care. Even if all one's co-resident kin are insured, the sources of insurance also matter. People in families with patchwork insurance – where all members are insured but through different sources and plans – are more at risk for sub-optimal access. The contrast in outcomes across patchwork insured and the uniformly insured family health insurance status suggests that the principle of equifinality does not apply to being medically insured within the family. The configuration of insurance within the family matters. Notably, though, this finding was not replicated for the focal child sample. The null finding for focal children may be an indication of the successes of extending publicly subsidized health insurance coverage to children. Alternatively families may prioritize access to care among members and invest more in securing health care for children.

The influence of insurance status (at both the family and individual levels) appears to be more strongly associated with affordability dimensions of delaying or foregoing care than with non-cost delays. However, insured adults who live with kin who are insured differently or not at all are more at risk for delays in care regardless of affordability. This suggests that differential coverage within families may hinder family members' abilities to mobilize (non-monetary) resources to enable access to care.

Several limitations of these findings are worth noting. The family health insurance coverage status measure, based on public use data, may underestimate the level of patchwork insurance, because different plans may match by coded characteristics. As discussed, the definition of family influences the construction of family-level variables. Different definitions based on sub-families, or more restrictive definitions based on tax dependency, may yield conflicting results. However, more narrow definitions of family could mask family dynamics in

health insurance and access. Clearly, more research is needed to help disentangle the confounding of family reckoning. A more detailed measure of family structure might provide some leverage as would models based on the clustering of cases within families (e.g., hierarchical linear modeling (HLM)). The analysis of persons of all ages (Table 4) is more tenuous with respect to the modeling approach and might benefit the most from HLM because multiple cases are clustered within families and violate the assumption of case independence. Weighting adjustments in the NHIS do not entirely correct this violation. However, my analytic results for unmet medical care need among all persons strongly resemble my results for focal adults' unmet health needs.

The current analysis does not address the thorny problem of health selection into different sources of insurance or the "lock" that keeps some people tied to particular employment (or marital) arrangements so as to retain insurance. I did add a general health status measure as a control in models predicting access to care (not shown). The primary findings and conclusions from those health-adjusted models were the same, however. Longitudinal data for health, health care access and detailed health insurance information for all family members would be required for a more definitive test that is not confounded with health selection (similar to Quesnel-Vallée's (2004) model at the individual level).

Finally, health insurance status is dynamic for individuals and families and, ultimately, tied to other institutional trends, e.g., changes in family status (e.g., marriage, divorce), employment, benefits, school enrollment, and aging. In the NHIS it is possible to measure change in health insurance coverage within the past 12 months, but more difficult to comprehensively measure change in health insurance plan type. Again, longitudinal data on health insurance coverage, plan types, and access to care could be used to determine both the

stability of health insurance coverage and the direction of causality in terms of coverage and access. Cross-sectional trends in family health insurance status can be assessed by pooling multiple years of the NHIS in order to detect national trends in the health sector and across social institutions. State level analyses may provide additional leverage, especially related to public insurance. Future studies should consider other consequences of family health insurance status, such as health outcomes and actualized access to care (e.g., doctor visits and other measures of utilization).

Conclusion

This paper addressed health insurance in the U.S. from a family perspective using recent data from the 2004 National Health Interview Survey by developing a new family level indicator to summarize the configuration of health insurance within the family. When determined at the family level, the problem of un-insurance in America is considerably larger than when assessed through an individual-level "head count" of those who lack health insurance. While most Americans have health insurance and most live in families where all members are uniformly insured, when insured individuals live with uninsured or differently insured kin there are significant costs, both in terms of monetary estimates and in terms of reduced access to health care.

Family health insurance status is an important, though previously underappreciated, component to enabling access to care in the U.S. Most previous research on health insurance from a family perspective has focused on children's well-being. My findings suggest that adults' access to care is just as sensitive, if not more, to family under- and un-insurance as children's access. Health policy that continues to frame lack of insurance coverage at the individual level will miss capitalizing on efficiencies of families in pooling and distributing resources.

Continued trends in higher private premiums, especially for family coverage, may exacerbate the

problem of the lack of health insurance coverage within families. While health policy has

addressed the coverage of children, the next step in incrementally insuring more Americans

should focus on covering adults by extending insurance within families.

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Figure 1. Family Health Insurance Status: National Health Interview Survey, 2004.
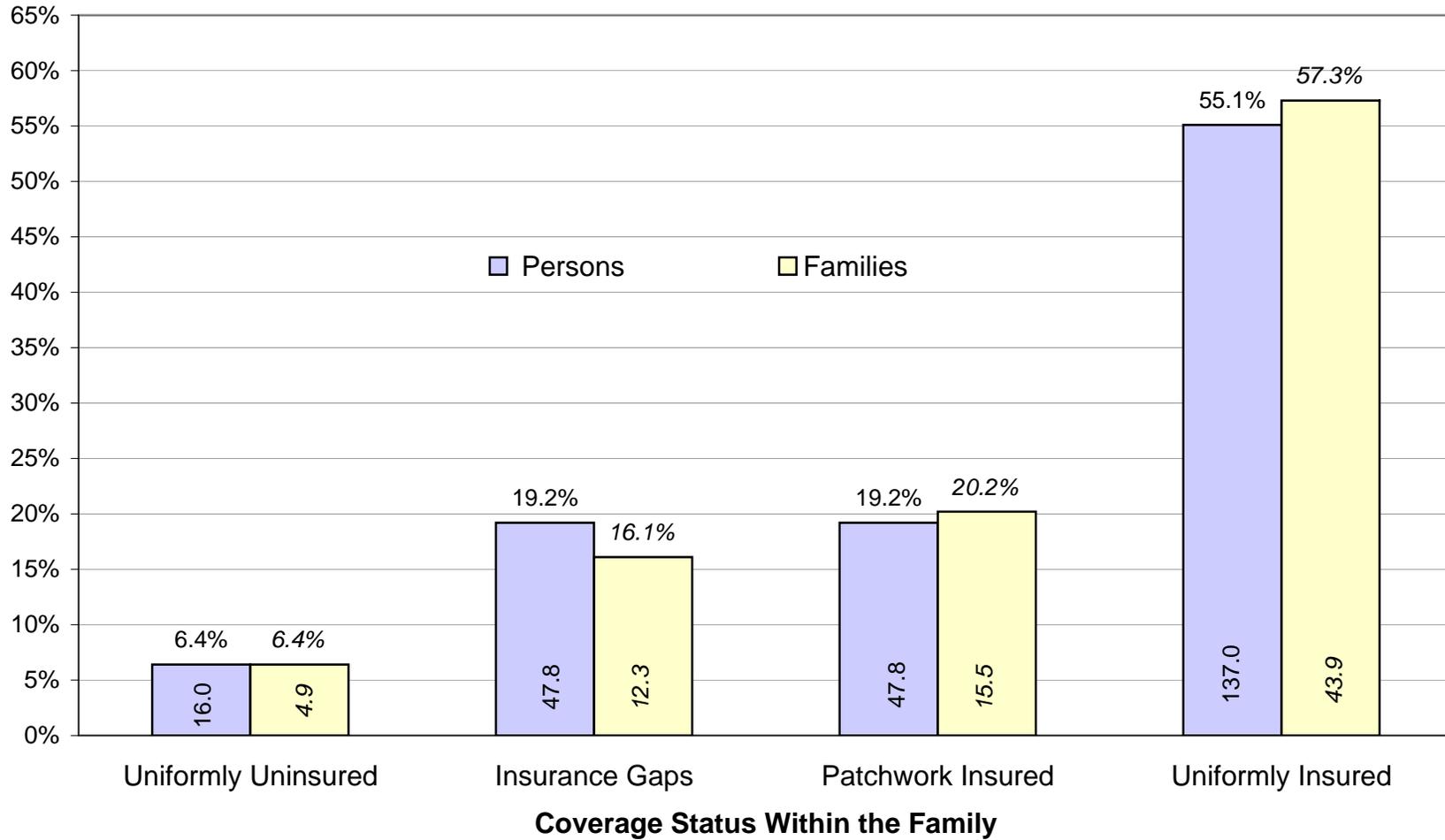
Notes: All figures are weighted percentage or counts adjusted for NHIS sample design. Bars represent percentages of Persons in families with 2+ members or percentages of *Families* among 2+ member families. Number labels on each bar are counts (in millions) of persons or *families.*

Figure 2. Costs per Person by Family Health Insurance Status: National Health Interview Survey, 2004.
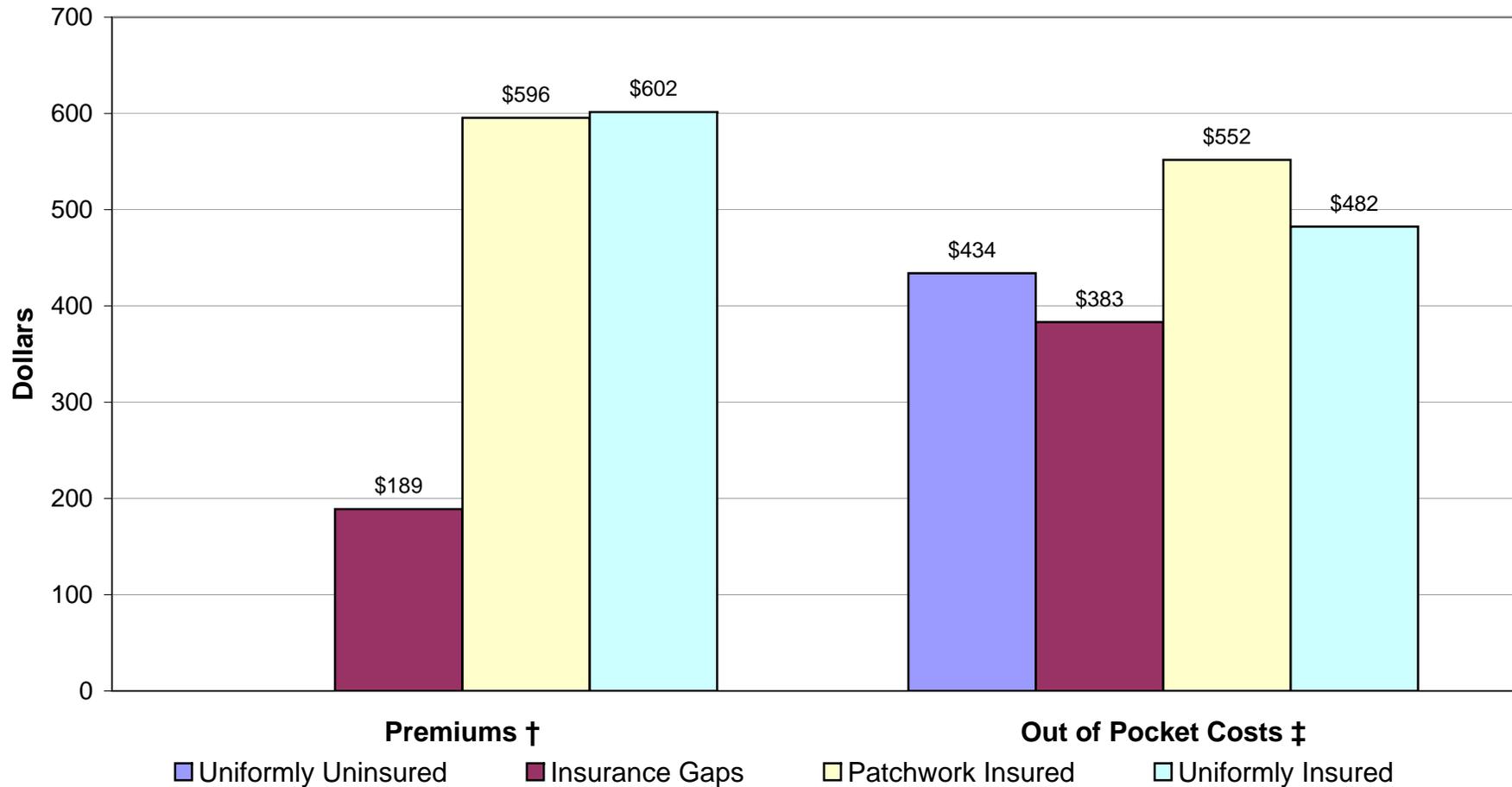
Notes: All figures are weighted and adjusted for NHIS sample design. Bars represent per person dollar amounts spent by families with 2+ members on health insurance premiums or on out of pocket health expenses.

† Insurance gap families pay significantly lower premiums than patchwork insured or uniformly insured families.

‡ All contrasts for out of pocket costs are statistically significant at $p \leq 0.05$ level.

Table 1. Sample Sizes: National Health Interview Survey, 2004.

	Total Sample	Analytic Samples [a]		Percent of Total [b]	Percent of All [c]
All persons	94,460				
All families	37,466				
Persons in 2+ families	83,271		82,926	99.6 %	87.8 %
Families with 2+ members	26,277		25,905	98.6	69.1
Focal adults, ages 18+	31,326		31,130	99.4	
		to	31,134	99.4	
Focal children, ages 0-17	12,424		12,406	99.9	
		to	12,409	99.9	

Notes: All figures are unwieghted counts.
[a] Ranges of sample sizes are based on valid outcome values.
[b] Percents of total is within row analytic sample out of total sample.
[c] Percents of all is analytic sample out of all persons or all families.

Table 2. Descriptive Statistics across samples: National Health Interview Survey, 2004.

	Families with 2+ members [a]	Persons in 2+ families	Focal adults, ages 18+	Focal children, ages 0-17
Health Insurance Status				
Health insurance coverage				
Public	-	0.171	0.145	0.279
Private (reference group)	-	0.675	0.687	0.628
None	-	0.145	0.163	0.089
Family Health Insurance Status				
Uniformly Uninsured	0.064	0.064	0.079	0.059
Insurance Gaps	0.161	0.192	0.154	0.201
Patchwork Insurance	0.202	0.192	0.172	0.154
Uniformly Insured	0.573	0.551	0.594	0.586
Individual Characteristics				
Age (in years)	-	33.856	45.463	8.607
elder (age 65+)	-	0.094	0.161	0.000
youth (age 0-17)	-	0.291	0.000	1.000
Gender female	-	0.507	0.519	0.489
Race African American/Black	-	0.126	0.117	0.162
White	-	0.821	0.835	0.783
Other race	-	0.053	0.048	0.055
Ethnicity Hispanic/Latino	-	0.152	0.125	0.191
Family Characteristics				
Income relative to needs	3.363	3.235	3.290	2.890
Income missing	0.297	0.292	0.245	0.219
Family size	3.052	3.621	2.821	4.476
Age composition				
Any elders in family (age 65+)	0.190	0.149	0.211	0.037
Number elders in family (age 65+)	0.296	0.226	0.297	0.043
Any youth in family (age 0-17)	0.480	0.626	0.384	1.000
Number youth (age 0-17)	0.898	1.335	0.728	2.419
Family Type				
Adults only family	0.521	0.375	0.617	0.000
Parent(s) & child(ren) family	0.360	0.435	0.252	0.769
Parent(s) & child(ren) family with other adults	0.099	0.160	0.113	0.189
Adult(s) & child(ren), no parents family	0.018	0.027	0.018	0.040
Family type missing	0.002	0.003	0.001	0.002
Access to Care Outcomes				
Unmet medical care need	-	0.077	-	-
Unmet health needs	-	-	0.155	0.078
Non-cost delay in care	-	-	0.098	0.082

Notes: All figures are weighted means or proportions (for categorical variables), adjusted for NHIS sample design. Proportions may not sum to exactly 1.000 due to rounding.
  [a] Family sample includes only family level estimates.

Table 3. Multinomial logistic regression predicting complexity of family insurance status.

	Coefficient (s.e.)	Odds Ratio	Coefficient (s.e.)	Odds Ratio	Coefficient (s.e.)	Odds Ratio
Family Insurance Status:	*Uniformly uninsured*		*Insurance gaps*		*Patchwork insurance*	
Income relative to needs	**-0.681** ***	**0.51**	**-0.545** ***	**0.58**	**-0.113** ***	**0.89**
	(0.025)		**(0.017)**		**(0.013)**	
Income missing	0.099	1.10	**-0.103** *	**0.90**	**-0.286** ***	**0.75**
	(0.066)		**(0.048)**		**(0.041)**	
Family Size	**1.014** ***	**2.76**	**1.571** ***	**4.81**	**0.932** ***	**2.54**
	(0.069)		**(0.049)**		**(0.043)**	
Number of elders (age 65+)	**-1.881** ***	**0.15**	**-0.325** ***	**0.72**	**0.415** ***	**1.51**
	(0.183)		**(0.046)**		**(0.032)**	
Number of youth (age 0-17)	**-1.164** ***	**0.31**	**-1.578** ***	**0.21**	**-0.949** ***	**0.39**
	(0.080)		**(0.055)**		**(0.052)**	
Family type						
Adults only family	**0.536** ***	**1.71**	-0.058	0.94	**0.490** ***	**1.63**
	(0.113)		(0.077)		**(0.077)**	
Parent(s) & child(ren) family (reference group)	0.000	1.00	0.000	1.00	0.000	1.00
	(-)		(-)		(-)	
Parent(s) & child(ren) family with other adults	**-0.363** **	**0.70**	**-0.303** ***	**0.74**	0.113	1.12
	(0.132)		**(0.089)**		(0.079)	
Adult(s) & child(ren), no parents family	**1.333** ***	**3.79**	**1.618** ***	**5.04**	**2.209** ***	**9.11**
	(0.241)		**(0.173)**		**(0.181)**	
Family type missing	0.257	1.29	-0.453	0.64	**-1.774** *	**0.17**
	(0.559)		(0.526)		**(0.811)**	
Married person(s) in family	**-1.320** ***	**0.27**	**-2.152** ***	**0.12**	**-1.643** ***	**0.19**
	(0.074)		**(0.058)**		**(0.051)**	
Employed worker(s) in family	**0.281** **	**1.32**	**0.410** ***	**1.51**	**0.377** ***	**1.46**
	(0.094)		**(0.071)**		**(0.064)**	
Intercept	**-1.401** ***		**-1.653** ***		**-2.033** ***	
	(0.159)		**(0.106)**		**(0.108)**	

Notes: Base outcome is **Uniformly insured** family. All estimates are weighted and adjusted for NHIS complex design. Analysis based on 25,905 families with two or more members. **Bolded estimates** are statistically significant at $p \leq 0.05$

Model $F_{33, 307}$ = 149.65 ($p < 0.0001$)

*** $p \leq 0.001$ * $p \leq 0.05$

** $p \leq 0.01$ + $p \leq 0.1$

Table 4.   Logistic regression predicting unmet medical care need.

	Coefficient	(s.e.)	Odds Ratio
Health Insurance Status			
Health insurance coverage			
Public	**0.240**	**(0.070)** ***	**1.27**
Private (reference group)	0.000	(-)	1.00
None	**1.739**	**(0.074)** ***	**5.69**
Family Health Insurance Status			
Uniformly Uninsured	**0.331**	**(0.100)** ***	**1.39**
Insurance Gaps	**0.538**	**(0.076)** ***	**1.71**
Patchwork Insurance	**0.538**	**(0.063)** ***	**1.71**
Uniformly Insured (reference group)	0.000	(-)	1.00
Missing	-0.140	(0.286)	0.87
Individual Characteristics			
Age (in years)	**0.012**	**(0.002)** ***	**1.01**
elder (age 65+)	**-0.980**	**(0.089)** ***	**0.38**
youth (age 0-17)	**-0.322**	**(0.079)** ***	**0.72**
Gender female	**0.211**	**(0.028)** ***	**1.24**
Race African American/Black	**-0.404**	**(0.065)** ***	**0.67**
White (reference group)	0.000	(-)	1.00
Other race	**-0.634**	**(0.107)** ***	**0.53**
Ethnicity Hispanic/Latino	**-0.680**	**(0.063)** ***	**0.51**
Married	**0.257**	**(0.063)** ***	**1.29**
Employed	**-0.187**	**(0.041)** ***	**0.83**
Family Characteristics			
Income relative to needs	**-0.225**	**(0.017)** ***	**0.80**
Income missing	**-0.306**	**(0.050)** ***	**0.74**
Family size	**-0.092**	**(0.036)** **	**0.91**
Age composition			
Any other elders in family	**-0.373**	**(0.080)** ***	**0.69**
Any other youth in family	0.089	(0.090)	1.09
Family Type Adults only family	0.001	(0.100)	1.00
Parent(s) & child(ren) family (reference group)	0.000	(-)	1.00
Parent(s) & child(ren) family with other adults	0.029	(0.070)	1.03
Adult(s) & child(ren), no parents family	-0.211	(0.137)	0.81
Family type missing	0.385	(0.435)	1.47
Married person(s) in family	**-0.325**	**(0.068)** ***	**0.72**
Employed worker(s) in family	**0.164**	**(0.077)** *	**1.18**
Intercept	**-2.350**	**(0.177)** ***	

Notes: All estimates are weighted and adjusted for NHIS complex design. Analysis based on 82,926 people in families with two or more members. **Bolded estimates** are statistically significant at $p \leq 0.05$

Model $F_{26, 314} = 154.58$ ($p < 0.0001$)

*** $p \leq 0.001$ * $p \leq 0.05$

Table 5. Logistic regression predicting unmet health needs and non-cost delay in care: adults ages 18+.

	Unmet health need			Non-cost delay in care		
	Coefficient	(s.e.)	Odds Ratio	Coefficient	(s.e.)	Odds Ratio
Health Insurance Status						
Health insurance coverage						
Public	**0.653**	**(0.055)** ***	**1.92**	**0.384**	**(0.069)** ***	**1.47**
Private (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
None	**1.262**	**(0.094)** ***	**3.53**	-0.118	(0.128)	0.89
Family Health Insurance Status						
Uniformly Uninsured	**0.300**	**(0.107)** **	**1.35**	0.153	(0.152)	1.16
Insurance Gaps	**0.652**	**(0.087)** ***	**1.92**	**0.205**	**(0.100)** *	**1.23**
Patchwork Insurance	**0.454**	**(0.062)** ***	**1.57**	**0.196**	**(0.071)** **	**1.22**
Uniformly Insured (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
Missing	0.146	(0.388)	1.16	-0.176	(0.366)	0.84
Individual Characteristics						
Age (in years)	0.003	(0.002)	1.00	-0.001	(0.002)	1.00
elder (age 65+)	**-0.718**	**(0.089)** ***	**0.49**	**-0.534**	**(0.097)** ***	**0.59**
Gender female	**0.367**	**(0.040)** ***	**1.44**	**0.299**	**(0.051)** ***	**1.35**
Race African American/Black	**-0.232**	**(0.062)** ***	**0.79**	-0.017	(0.070)	0.98
White (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
Other race	**-0.692**	**(0.126)** ***	**0.50**	0.194	(0.110) +	1.21
Ethnicity Hispanic/Latino	**-0.490**	**(0.067)** ***	**0.61**	0.030	(0.065)	1.03
Married	0.143	(0.118)	1.15	0.222	(0.134) +	1.25
Employed	0.020	(0.059)	1.02	-0.097	(0.071)	0.91
Family Characteristics						
Income relative to needs	**-0.249**	**(0.015)** ***	**0.78**	-0.024	(0.017)	0.98
Income missing	**-0.257**	**(0.048)** ***	**0.77**	**-0.304**	**(0.057)** ***	**0.74**
Family size	0.010	(0.027)	1.01	0.046	(0.031)	1.05
Age composition						
Any other elders in family	**-0.319**	**(0.079)** ***	**0.73**	0.014	(0.084)	1.01
Any other youth in family	0.227	(0.524)	1.26	-1.010	(0.788)	0.36
Family Type						
Adults only family	0.348	(0.517)	1.42	-0.589	(0.797)	0.56
Parent(s) & child(ren) family (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
Parent(s) & child(ren) family with other adults	0.020	(0.075)	1.02	0.103	(0.087)	1.11
Adult(s) & child(ren), no parents family	-0.008	(0.141)	0.99	0.122	(0.186)	1.13
Family type missing	-0.679	(0.620)	0.51	-0.954	(1.011)	0.39
Married person(s) in family	**-0.298**	**(0.120)** *	**0.74**	**-0.382**	**(0.133)** **	**0.68**
Employed worker(s) in family	0.002	(0.073)	1.00	-0.084	(0.085)	0.92
Intercept	**-1.872**	**(0.532)** ***		-1.399	(0.807) +	
Observations	31,134			31,130		
Model $F_{25, 315}$	97.78	***		9.62	***	

Notes: All estimates are weighted and adjusted for NHIS complex design. Analysis based on valid data for sample adults ages 18-85+.
        Bolded estimates are statistically significant at $p \leq 0.05$
        *** $p \leq 0.001$ *** $p \leq 0.05$**
        ** $p \leq 0.01$ + $p \leq 0.1$

Table 6.   Logistic regression predicting unmet health needs and non-cost delay in care: children ≤ 17.

	Unmet health need			*Non-cost delay in care*		
	Coefficient	**(s.e.)**	**Odds Ratio**	**Coefficient**	**(s.e.)**	**Odds Ratio**
Health Insurance Status						
Health insurance coverage						
Public	0.095	(0.154)	1.10	**0.643**	**(0.108)** ***	**1.90**
Private (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
None	**1.442**	**(0.214)** ***	**4.23**	**0.574**	**(0.221)** **	**1.77**
Family Health Insurance Status						
Uniformly Uninsured	-0.026	(0.239)	0.97	**-0.649**	**(0.269)** *	**0.52**
Insurance Gaps	0.247	(0.153)	1.28	-0.035	(0.120)	0.97
Patchwork Insurance	0.095	(0.137)	1.10	0.018	(0.126)	1.02
Uniformly Insured (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
Missing	0.812	(0.586)	2.25	0.735	(0.555)	2.09
Individual Characteristics						
Age (in years)	**0.088**	**(0.008)** ***	**1.09**	-0.009	(0.008)	0.99
Gender female	**-0.226**	**(0.095)** *	**0.80**	0.079	(0.078)	1.08
Race African American/Black	**-0.401**	**(0.128)** **	**0.67**	-0.096	(0.113)	0.91
White (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
Other race	-0.363	(0.212) +	0.70	-0.221	(0.192)	0.80
Ethnicity Hispanic/Latino	-0.113	(0.110)	0.89	**0.391**	**(0.095)** ***	**1.48**
Family Characteristics						
Income relative to needs	**-0.296**	**(0.037)** ***	**0.74**	**-0.079**	**(0.032)** *	**0.92**
Income missing	0.002	(0.109)	1.00	**-0.244**	**(0.102)** *	**0.78**
Family size	0.040	(0.052)	1.04	0.018	(0.048)	1.02
Age composition						
Any elders in family	0.108	(0.230)	1.11	-0.264	(0.233)	0.77
Number additional youth (age 0-17)	0.038	(0.117)	1.04	-0.026	(0.108)	0.97
Family Type						
Parent(s) & child(ren) family (reference group)	0.000	(-)	1.00	0.000	(-)	1.00
Parent(s) & child(ren) family with other adults	-0.008	(0.120)	0.99	**0.231**	**(0.110)** *	**1.26**
Adult(s) & child(ren), no parents family	-0.245	(0.254)	0.78	0.087	(0.216)	1.09
Family type missing	0.281	(0.664)	1.32	-1.092	(0.769)	0.34
Married person(s) in family	**-0.412**	**(0.107)** ***	**0.66**	**-0.268**	**(0.104)** *	**0.77**
Employed worker(s) in family	0.161	(0.135)	1.18	**-0.289**	**(0.133)** *	**0.75**
Intercept	**-2.750**	**(0.248)** ***		**-2.082**	**(0.201)** ***	
Observations	12,409			12,406		
Model $F_{21,\,319}$	24.63	***		10.77	***	

Notes: All estimates are weighted and adjusted for NHIS complex design. Analysis based on valid data for sample children ages 0-17. **Bolded estimates** are statistically significant at p ≤ 0.05

       *** *p* ≤ 0.001   * *p* ≤ 0.05

       ** *p* ≤ 0.01   + *p* ≤ 0.1