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JANUARY 2024

SHADAC's Coverage Hierarchy for American Community Survey (ACS) Estimates on State Health Compare

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Summary

In this brief SHADAC defines a "primary source of coverage hierarchy," and details how and when researchers can use this tool to determine which payer is primary when an individual reports multiple sources of health insurance coverage on a survey.

Introduction

Health insurance coverage does not always come from just a single source. Individuals sometimes choose to purchase multiple insurance policies and/or are enrolled in multiple coverage types. For example, some elderly and disabled persons are eligible for and enrolled in both Medicare and Medicaid (referred to as "dual eligibles"). Another common example is individuals enrolled in Medicare who also purchase "Medigap" plans to cover the out-of-pocket (OOP) expenses that are not paid for by Medicare. For this reason, most surveys that collect information on health insurance allow respondents to report multiple sources of health insurance coverage. In both cases described above, the individual would correctly report two forms of insurance—in the first scenario, the individual would report having Medicare and Medicaid, and in the second example, an individual would report having both Medicare and direct purchase insurance. According to data from the American Community Survey (ACS), 17.7 percent of individuals with coverage reported having multiple sources of insurance in 2022 (Table 1).

In most cases, individuals with multiple sources of insurance have one source that serves as the primary payer and it is often useful to have a methodology for reporting this primary source. A common approach is to use a "primary source of coverage hierarchy." Instead of being recorded in multiple categories, individuals with multiple types of health insurance are assigned to just one primary source, thereby creating mutually exclusive insurance source categories. Creating this kind of hierarchy can give a more accurate picture of the distribution of different types of coverage that serve as the primary payers for a population. In addition, it can be used to address issues such as the known over-reporting of direct purchase coverage in some surveys.[1] Finally, a primary source of coverage hierarchy ensures that respondents are only counted once in estimates of the distribution of coverage, guaranteeing that the distribution of coverage types sums to 100 percent.

Using a primary source of coverage hierarchy is a common practice throughout health economics and health services research literature.[2,3,4] Researchers typically use a hierarchy to ensure that individuals who report having multiple types of coverage are only counted once, to reduce the rate of over-reporting multiple sources of coverage and to make coverage estimates more comparable across different surveys.[5] The order of coverage used in these hierarchies varies widely based on the research focus, data source, and requirements of the analysis. In the following analysis, our focus is on the hierarchy that SHADAC uses to produce ACS coverage estimates on its State Health Compare web tool.

Table 1. Health Insurance Coverage Estimates by Age Group, ACS 2022

Sources of Coverage	Age 0-18	Age 19-64	Age 65+	All Ages
1 Source of Insurance Coverage	92.7%	92.2%	37.4%	82.2%
Multiple Sources of Insurance Coverage	7.3%	7.8%	62.6%	17.7%
2 Sources of coverage	*7.0%*	*7.1%*	*49.5%*	*14.9%*
3+ Sources of coverage	*0.3%*	*0.7%*	*13.1%*	*2.8%*

Note: All estimates are for the noninstitutionalized population. Does not include individuals who reported having no health insurance coverage.
Source: SHADAC analysis of the 2022 American Community Survey (ACS) Public Use Microdata Sample (PUMS) file.

SHADAC's Primary Source of Coverage Hierarchy and the ACS

SHADAC routinely imposes a primary source of coverage hierarchy when reporting national, state, and sub-state measures of health insurance coverage. The goal of SHADAC's ACS coverage hierarchy is to identify survey respondents who report multiple sources of health insurance in the American Community Survey and determine which source is likely to be (1) a comprehensive health insurance plan that (2) serves as the respondent's primary payer (i.e., the insurance plan that pays first).

Table 2 shows the hierarchical order in which survey respondents who report multiple types of coverage are sorted into one insurance type—creating a mutually exclusive category. SHADAC's ACS primary source of coverage hierarchy is defined separately for respondents under age 19 and respondents 19 years of age or older based on the rules governing Medicare coverage. Children (age 0-18) generally are only eligible for Medicare if they have End-Stage Renal Disease.[6] For adult respondents (age 19 or older), Medicare is considered the primary coverage source, so any adult respondent who reported Medicare in combination with any other source(s) is assigned to Medicare. This is because Medicare is the primary payer for covered medical services, for those with Medicare and Medigap plans (reported as direct purchase), for Medicare-Medicaid dual enrollees, and for those with Medicare and employer coverage through retiree health plans or, in some cases, for the working aged.[7] Next, the SHADAC hierarchy assigns anyone not reporting Medicare but reporting Employer or Military coverage, including TRICARE and Veterans Administration (VA), as Employer/Military. The hierarchy then assigns respondents reporting Medicaid or CHIP (but not reporting Medicare or Employer/Military) as Medicaid/CHIP. (Medicaid is generally the payer of last resort and, in most cases by law, all other sources of coverage must pay claims before Medicaid.)[8] The last coverage in the hierarchy is Direct Purchase (also called nongroup or individual market coverage), and this is only assigned to respondents who don't report any other coverage type (Medicare, Employer/Military, or Medicaid/CHIP). Direct Purchase is assigned last because this is typically the least generous coverage and there is evidence in the ACS and in some other surveys of mis- and/or over-reporting of this health insurance type.[9,10]

Table 2. SHADAC Primary Source of Coverage Hierarchy on State Health Compare, ACS 2022

	Age 19 or older	Age 0-18
1	Medicare	Employer/Military (TRICARE, VA)
2	Employer/Military (TRICARE, VA)	Medicaid/CHIP
3	Medicaid/CHIP	Direct purchase
4	Direct purchase	Medicare
5	Uninsured	Uninsured

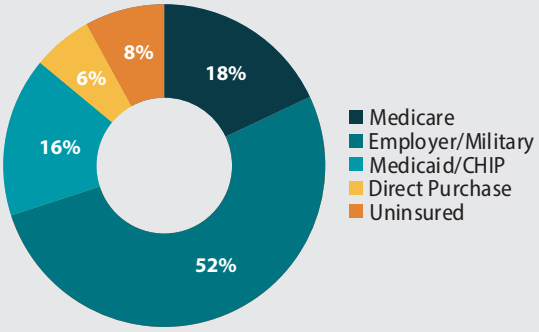
Impact of Using SHADAC's Primary Source of Coverage Hierarchy on Coverage Estimates in the ACS

Figure 1 (below) shows the impact of imposing the SHADAC primary source of coverage hierarchy on ACS coverage estimates. As shown, the hierarchy allocates respondents reporting multiple sources of coverage to one coverage type, creating five mutually exclusive categories that sum to 100 percent. Table 3 shows the impacts in more detail. As shown in the gray-shaded cell, the largest change to the overall distribution occurs among the elderly (age 65 or older), 62.6 percent of whom report having multiple sources of coverage (Table 1).

Among coverage types, applying a hierarchy has the largest impact on rates of direct purchase, bringing these estimates closer in line with those from administrative data.[11] The effect is largest among those 65 and older (28.5 percentage-point decrease), as respondents in this group are likely to report having supplemental coverage from an employer, purchased directly from an insurer or from Medicaid.[12] Applying a hierarchy also leads to decreases in rates of direct purchase coverage among the 19-64 and 0-18 age groups (3.4 percentage points and 2.5 percentage points, respectively).

Applying a hierarchy also has a large effect on the rate of employer/military coverage, but this impact is primarily seen for those 65 and older, who experience a 33.7 percentage-point decrease. Applying a hierarchy has a smaller effect on rates of employer coverage among those age 19-64 (0.7 percentage-point decrease) and no effect among those age 0-18, as employer coverage is first in the hierarchy for this age group.

Figure 1. Primary Source of Health Insurance Coverage, All Ages, 2017



The hierarchy has a modest impact on rates of Medicaid/CHIP coverage overall, and this decrease is again largest among those age 65 or older (14.1 percentage points). After applying the hierarchy, the rate of Medicaid coverage for this group is zero percent, as all respondents with Medicaid coverage also have Medicare coverage. The hierarchy has a more modest impact on rates of Medicaid coverage among the age 19-64 group (3.3 percentage-point decrease), with 50.0 percent of the decrease attributed to those dually-eligible for Medicare and Medicaid and 50.0 percent of the decrease attributed to those reporting both employer coverage and Medicaid. There is also a modest decrease in Medicaid coverage among the age 0-18 group (4.3 percentage points), attributed to respondents reporting employer and Medicaid coverage.

The hierarchy has a small impact on rates of Medicare coverage overall. Because Medicare is first in the hierarchy applied to those age 19 and over, there is no change in rates of Medicare coverage among these groups. Only a 0.4 percentage-point decrease in rates of Medicare is seen among those age 0-18, and just a 0.1 percentage-point decrease is recorded among all ages.

Since the hierarchy only assigns a source of coverage to those who report multiple sources, the methodology doesn't impact the rate of uninsurance as there is no source of coverage in this instance.

Table 3. Health Insurance Coverage Estimates by Age Group, Hierarchy vs. No Hierarchy

Coverage Type	Hierarchy		No Hierarchy		Difference	
	Percent	Count	Percent	Count	Pct. Point	Count
Age 0-18						
Medicare	0.2%	164,919	0.6%	463,720	-0.4	-298,801
Employer/Military	54.7%	41,896,319	54.7%	41,896,319	0.0	0
Medicaid/CHIP	34.7%	26,569,890	39.0%	29,904,758	-4.3	-3,334,868
Direct Purchase	5.4%	4,102,946	7.9%	6,026,621	-2.5	-1,923,675
Uninsured	5.1%	3,913,738	5.1%	3,913,738	0.0	0
Total	***100.0%***	***76,647,812***	***107.3%***	***82,205,156***	***-7.3***	***-5,557,344***
Age 19-64						
Medicare	3.4%	6,610,004	3.4%	6,610,004	0.0	0
Employer/Military	64.3%	126,382,854	65.0%	127,799,233	-0.7	-1,416,379
Medicaid/CHIP	12.8%	25,079,117	16.1%	31,670,107	-3.3	-6,590,990
Direct Purchase	8.5%	16,619,241	11.9%	23,462,046	-3.4	-6,842,805
Uninsured	11.2%	21,929,114	11.2%	21,929,114	0.0	0
Total	***100.0%***	***196,620,330***	***107.6%***	***211,470,504***	***-7.6***	***-14,850,174***
Age 65+						
Medicare	95.3%	53,770,995	95.3%	53,770,995	0.0	0
Employer/Military	3.3%	1,889,645	37.0%	20,855,631	-33.7	-18,965,986
Medicaid/CHIP	0.0%	0	14.1%	7,960,992	-14.1	-7,960,992
Direct Purchase	0.5%	293,385	29.0%	16,358,008	-28.5	-16,064,623
Uninsured	0.8%	456,616	0.8%	456,616	0.0	0
Total	***100.0%***	***56,410,641***	***176.2%***	***99,402,242***	***-76.2***	***-42,991,601***
All Ages						
Medicare	18.4%	60,545,918	18.5%	60,844,719	-0.1	-298,801
Employer/Military	51.6%	170,168,818	57.8%	190,551,183	-6.2	-20,382,365
Medicaid/CHIP	15.7%	51,649,007	21.1%	69,535,857	-5.4	-17,886,850
Direct Purchase	6.4%	21,015,572	13.9%	45,846,675	-7.5	-24,831,103
Uninsured	8.0%	26,299,468	8.0%	26,299,468	0.0	0
Total	***100.0%***	***321,823,738***	***118.0%***	***379,868,609***	***-18.0***	***-58,044,871***

Note: All estimates are for the noninstitutionalized population.
Source: SHADAC analysis of the 2022 American Community Survey (ACS) Public Use Microdata Sample (PUMS) file.

Using an Insurance Coverage Hierarchy

Using a coverage hierarchy may not be appropriate for all types of analysis. For instance, a hierarchy should not be used when the study seeks to examine individuals who have multiple sources of insurance coverage (e.g., dual-eligible beneficiaries of Medicare and Medicaid), since a hierarchy by definition assigns individuals to just one type of coverage.

A hierarchy also may not be appropriate when looking at respondents with a specific source of coverage when the status of that type of coverage as primary versus supplementary is not relevant to the analysis. Applying a hierarchy in this case may inappropriately exclude respondents with that type of coverage.

It's also important to note that no one hierarchy will be appropriate for every analysis. Rather, analysts can and should alter the priority of coverage types in the hierarchy in order to tailor it to their specific research question. For example, a study focusing on changes in the rates of public coverage over time would likely put public coverage types first in the hierarchy before forms of private coverage such as employer-sponsored or direct purchase coverage.

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