CALIFORNIA RURAL INDIAN HEALTH BOARD

ANALYSIS OF MEDICAID PAYMENTS FOR AMERICAN INDIANS & ALASKA NATIVES

Centers for Medicare and Medicaid Services: American Indian & Alaska Native Data Project

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Summary

The Indian Health Service (IHS) is a discretionary federal program that provides only part of the health care needed by the American Indians and Alaska Natives (AIAN) who use the IHS and Tribal health care facilities of the IHS system. Because of the limited budget appropriated to the IHS, the IHS estimates that it provides only about 54% of the per capita costs of health care needed by AIAN they serve. In 1976 Congress authorized providers of the IHS system to bill Medicaid and other federal entitlement programs for users of their facilities who were eligible for the programs. Children's Health Insurance Program (CHIP) payments to the facilities were authorized when program benefits first became available in 1997.

The IHS estimates that 25% of the total per capita costs of health care needed by AIAN Active Users is paid by third-parties including Medicaid, Medicare, CHIP and private insurance. The AIAN survey data on which this calculation is based is now more than 20 years old. Yet this fraction of 25% is used by IHS in calculation of allocations of any new federal funds they receive to IHS system providers to reduce any gap in uncovered health care costs. Furthermore the fraction is fixed at 25% regardless of the IHS or Tribal facility, or the IHS service delivery Area in which they are located. To understand how the IHS methods designed to improve equity of health care funding across IHS Areas are actually performing, there is a need to determine how much revenue third-parties are paying IHS system providers, and to determine how those amounts vary across the IHS Areas, if not across all IHS and Tribal facilities.

The largest alternate resource to the IHS for health care funding is Medicaid. Medicaid pays for care received by AIAN not only through the IHS and Tribal health care facilities, but from any other Medicaid provider. Medicaid has grown to provide a substantial but largely unknown fraction of the health care coverage for AIAN who use the IHS system. While the 'Medicaid fraction' is clearly the largest part of the 25% fraction of alternate resources used by IHS in its allocation of new funds, it is not known how much Medicaid payments are for AIAN who use IHS and Tribal facilities nor how much payments vary across IHS Areas.

The main goal of this report is to determine how Medicaid payments (including Medicaid-CHIP payments) for personal health care services of AIAN who use the IHS system of health care providers (IHS AIAN) vary across the 12 Areas of the IHS. These are the total payments per Medicaid recipient regardless of the Medicaid provider paid. Providers to IHS AIAN include not only IHS and Tribal facilities, and the providers that they contract with to provide services (Contract Health Service), but also any other Medicaid provider that IHS AIAN choose to use. In the report we compare Medicaid payments across the IHS Areas in two ways:

- First we compare the average payment per IHS AIAN Medicaid recipient per year for all the IHS Areas after performing statistical adjustments of the payment for a number of factors that differ among the IHS Areas that are known to affect health care spending;

- Second we compare the 'Medicaid fraction' of the total health care costs for the 'IHS Active Users' in all Areas using the unadjusted average payment per IHS Active User Medicaid recipient, and applying the adjustments used in the IHS methodology in its determinations of unmet health care needs for its Health Care Improvement Fund allocations.

- A third set of findings emerged in pursuit of the first and second comparisons that was key to the main goal of the report. We found a group of "IHS Active Users" enrolled in Medicaid for whom payment were

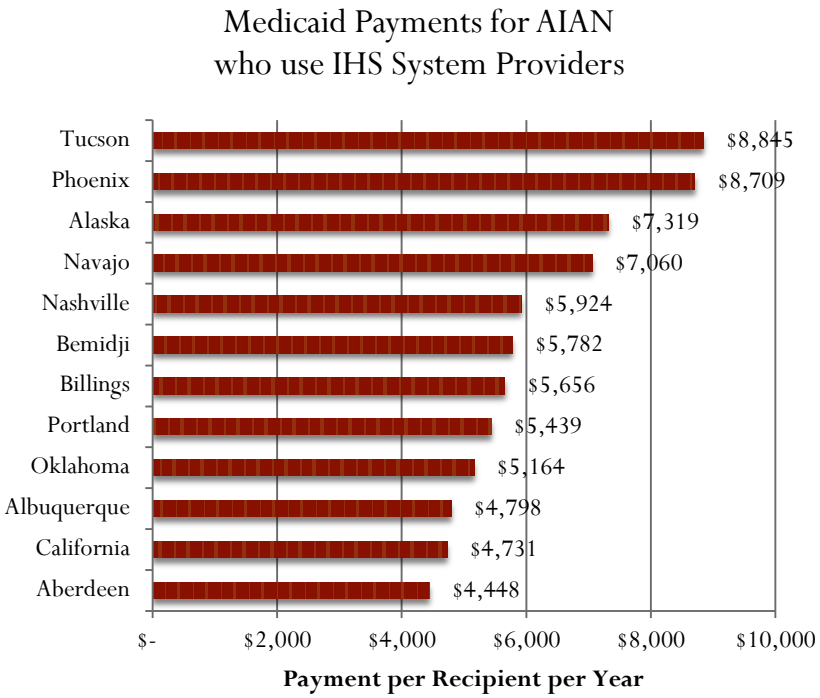
exceptionally low, even after adjustments. These IHS Active Users were Medicaid recipients who had no IHS Program claims. Since these Medicaid recipients might have lower payments because IHS and Tribal facilities were not collecting all the Medicaid payments they were entitled to, we investigated how much lower the average payment was for these Medicaid recipients for all the IHS Areas after applying the same statistical adjustments used for the first comparison we reported.

To be sure to include any "IHS Active Users" not identified in Medicaid data extracted from the Medicaid Statistical Information System (MAX) for 2006, we used Medicaid data that had been linked with 2006 IHS Active User data identified by the registry in the IHS National Data Warehouse (NDW). The linkage and its findings were described in a previous report. The linkage identified 550,000 AIAN Medicaid and Medicaid-CHIP enrollees who were users of the IHS system of health care providers. Of those IHS AIAN, nearly half a million (496,000) were recipients of Medicaid paid services during the year, 472,000 had Medicaid paid services from IHS and Tribal health care facilities for care they provided themselves directly or through Contract Health Services.

Medicaid payments for personal health care services during 2006 for AIAN Medicaid and Medicaid-CHIP enrollees who were users of the IHS system of health care providers (IHS AIAN) are found to be $ 2.05 billion. This includes payments not only to IHS and Tribal health care facilities for care they provided themselves directly or through Contract Health Services, but to any other health care providers that the IHS AIAN used during the year. Amounts paid by payers other than Medicaid to cover claims filed with Medicaid (mainly private insurance) are much lower, $15 million, but they are included in per capita payments analyzed in this report because they play an important role in the Nashville Area. In a prior report we found that excluding these third-party payments for Medicaid claims inappropriately lowers IHS AIAN payments per Medicaid recipient in the Nashville Area by a third. We describe here the analyses and findings for the three objectives outlined above:

Medicaid Payments Vary across IHS Areas even after Adjustment for Differences in Factors Known to Affect Health Care Spending

To have comparable payments across IHS Areas, adjusted average payments for three major classifications of Medicaid recipients were combined using standard techniques for weighted averages: Medicaid recipients under age 65 with only fee-for-service medical care, Medicaid recipients under age 65 with any of their medical services in managed care, and Medicaid recipients age 65 and over. The payments per person for each of these classifications of Medicaid recipients were risk-adjusted for differences between the IHS AIAN with respect to age, sex, disability, and dual-enrollment with Medicare. Adjustments for differences in morbidity were possible only for Medicaid recipients enrolled all year. Adjustments for differences in state Medicaid programs were approximated by including Medicaid recipients living in the same counties as the IHS AIAN who were either self-declared (race) AIAN who did not use IHS system providers, or were non-Hispanic whites. Payments were also adjusted for variation in health care prices using medical care price indices for the Areas quantified by the IHS.

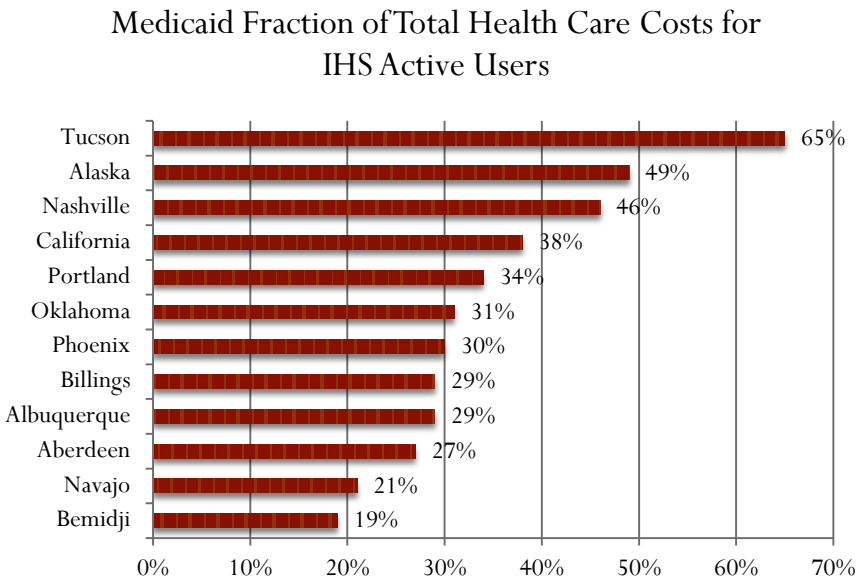


The adjusted average payments for IHS AIAN Medicaid recipients range nearly two-fold across IHS Areas. The highest payments for the Tucson and Phoenix Areas are nearly $9,000 per recipient ($8,845 and $8,709 per recipient per year respectively) which is twice as high as the lowest payment for Medicaid claims was found for Aberdeen Area ($4,448). Tucson, Phoenix and Navajo Areas rank high because of exceptionally high Medicaid payments found in Arizona. When recipients in Arizona state are removed from Phoenix and Navajo Areas the adjusted average payments in the areas were less than Alaska Area.

Areas other than Aberdeen with adjusted payments below $5,000 per recipient per year are California ($4,731) and Albuquerque ($4,798) Areas Oklahoma, Portland, Billings Bemidji and Nashville are below $6,000 while Navajo and Alaska Areas are above $7, 000 but below $8,000.

The Fraction of Total Health Care Costs for IHS Active Users paid by Medicaid Varies across IHS Areas

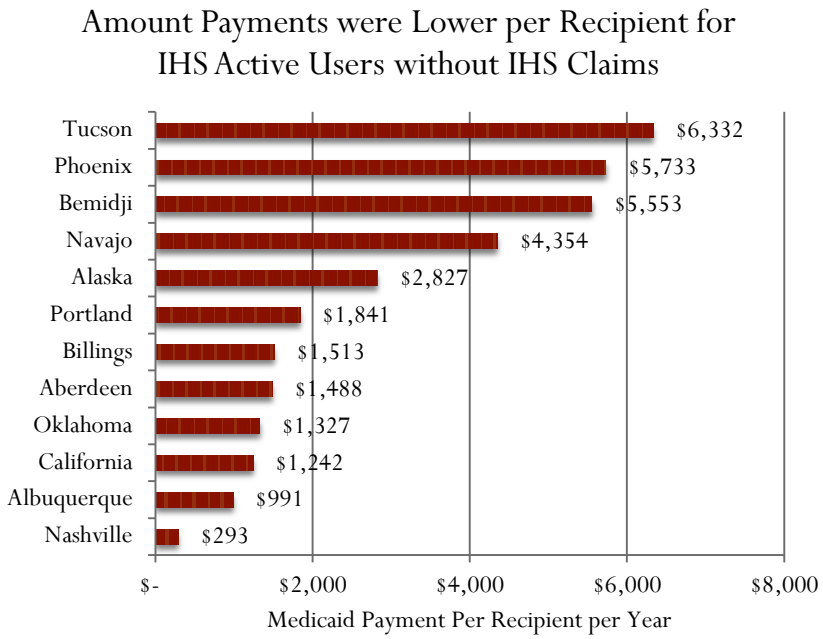
In an effort to provide equitable funding to all segments of its service population, the IHS allocates a portion of new federal funds it receives each year to IHS and Tribal facilities in its system based on its calculated estimates of the unmet health care need of the AIAN Active User population served by the facilities. The IHS estimates that for every IHS Area facility 25% of the total per capita costs of health care needed by AIAN Active Users is paid by third-parties including Medicaid, Medicare, and private insurance. The extent to which the 25% fraction is too high, underestimates the remaining unmet health care need of the AIAN. The extent to which the 25% fraction is too low in other Areas overestimates their unmet health care need.



Medicaid payment data in this report inserted into the IHS methodology demonstrates that the Medicaid fraction varies three-fold across IHS Areas from about 19% to 65%. The 'Medicaid fraction' is more than 25% in 9 of 12 IHS Areas. Areas with the lowest fraction of about one-fifth are Nashville (19%) and Oklahoma (21%). Aberdeen, California, Albuquerque, Portland and Bemidji Areas have mid-range fractions of between a little more than one quarter and a little less than one-third (27% to 31%). Alaska and Billings are in the middle of the Area rankings with a little more than one-third of the costs paid by Medicaid (34% to 38%). It was found that very high Medicaid payments in the state of Arizona for AIAN contribute to the highest Medicaid fractions found: nearly one half for Navajo and Phoenix Areas (46% and 49% respectively) and nearly two-thirds (65%) in Tucson Area. Medicaid data for IHS Active Users clearly can be used to allow for variation in Medicaid payments across IHS Areas as IHS allocates new federal funds it receives to IHS and Tribal facilities.

IHS System Providers are losing Medicaid Revenues for some IHS Active Users

During the process of conducting the analysis, we found that linking Medicaid data with IHS Active User registry data creates two subgroups of IHS AIAN Medicaid recipients who are Active Users: One group includes Active Users with IHS health system provider claims in the Medicaid data system. The other includes Active Users who do not have IHS system provider claims in the Medicaid data system. There are several potential reasons that IHS AIAN Medicaid recipients are in the second group. One has important implications related to Medicaid revenues that IHS system providers may not be collecting. IHS or Tribal providers may not submit all Medicaid claims they could submit, and some Medicaid claims they submit are denied or suspended and never fully adjudicated. This group of IHS AIAN Medicaid recipients could represent a loss of earned Medicaid revenue by IHS and Tribal providers. We explore alternatives in the report.



In every Area there were AIAN there were IHS Active Users identified by IHS registry data who had Medicaid paid claims, but none of the claims were identified as those of IHS providers. The percent of IHS AIAN Medicaid recipients varied from 23% in California Area to a high of 67% in the Bemidji Area where 2 out of 3 states in the Area did not identify IHS system provider claims.

Adjusted Medicaid payments were found to be systematically lower for these IHS Active Users by substantial amounts in all Areas. Differences in payments ranged from a high of more than $6,000 in Tucson Area to a low of less than $300 in the Nashville Area where most its states do not identify IHS claims. The persistence of this affect across all IHS Areas and Medicaid recipient types implied that IHS system providers – both IHS and Tribal-- were potentially entitled to increased Medicaid revenues with improved Medicaid collections practices.

Conclusions and Recommendations

The findings in this report are important for updating the IHS process of determining funding allocations of the Health Care Improvement Fund. The size and variation across IHS Areas in Medicaid payments for AIAN who use the IHS system is large to ask the IHS to utilize actual amounts of Medicaid payments as opposed to a fixed fraction in determining funding allocations of the Health Care Improvement Fund. Demonstrating how this data should be utilized is beyond the scope of this report since not all factors that would go into that calculation are addressed here, but the importance of linked data to identify all IHS Active User Medicaid recipients and their total Medicaid payments is well documented.

The findings in this report are important for IHS and Tribal facilities to improve their collections of Medicaid claims. To the extent that IHS system providers are not billing or collecting for care they provide to AIAN who are eligible for Medicaid or CHIP, they are increasing demand for their limited IHS health care funds that could be paid by Medicaid and CHIP funds. The power of linked IHS and Medicaid data to identify Areas of the IHS health care delivery system that could improve Medicaid or CHIP enrollment and others that could improve claims collections is clear. The linkage provides comparable data for the percent of IHS Active Users who were enrolled in Medicaid in all the Areas, for the numbers of IHS Active User Medicaid recipients for whom Medicaid payment collections could be improved, and for the amounts by which the payments might be improved.

The findings reported here are important for CMS policy development as well. The extent of variation among IHS Areas in Medicaid payments for services to the AIAN population that uses the IHS system is evidence of a high level of state discretion in how they fulfill the federal trust responsibility to provide an appropriate level of health care services IHS system users. This variation will no doubt be increased in the near future as several states with large AIAN populations in IHS service delivery Areas opt to not participate in the Medicaid Expansion opportunity established under the Affordable Care Act. CMS, with the full participation of Indian Tribes, should explore policy options to minimize this lack of equity in access to Medicaid services and revenues.

Introduction

The Indian Health Service (IHS) funds only part of the health care needed by the AIAN who rely on the IHS health care system because of the chronically underfunded IHS budget. Funding of the agency has grown in recent years but has not caught up with the growth of the AIAN population, the amount or kinds of specialized care needed, and the increases in health care costs. The IHS estimates that they provide only 54% of the health care funds needed for the AIAN user population. Congress authorized Medicaid and Medicare payment for services delivered by IHS and Tribal facilities through amendments to the Social Security Act made in the Indian Health Care Improvement Act of 1976 (P.L. 94-437). Children's Health Insurance Program (CHIP) payments to the facilities were authorized when program benefits first became available in 1997.

By far the largest alternate resource to IHS for the health care funding of AIAN who rely on the IHS system is Medicaid. Together with, Medicaid has grown to provide a substantial but largely unknown fraction of the coverage of health care for the AIAN user population of the IHS system. There have been numerous challenges to the IHS and Tribal facilities in managing enrollment, billing and collections because for so many years they provided only free care themselves, or contracted to provide free care with other more specialized or emergency care providers (Contract Health Services). Though the numbers of the IHS system user population enrolled in Medicaid and its much smaller companion program Medicaid-CHIP has grown substantially over the years, it has been a challenge for IHS and Tribal health care facilities accustomed to annual appropriations of federal funds to bill and collect daily claims payments from state Medicaid programs or private Medicaid managed care plans.

The IHS takes into account Medicaid and other alternate resources of the IHS and Tribal facilities as it allocates any new federal funds it receives through its Health Care Improvement Fund. The amount provided to the facilities is based on calculated estimates of the unmet health care need of the AIAN served by the facilities. Thus one of the key factors in estimating the unmet health care costs is subtraction of the amount of Medicaid payments made for health care of IHS system users. In 1987 an IHS survey of AIAN households found that Medicaid together with other third-party payers paid about 25% of the total expenditures needed for the health care of the IHS user population. This fraction is used for every facility in the system. There has been no reliable update of this information now more than 20 years old. While the IHS releases estimates of funds gathered from third-parties for the facilities they operate annually, it is not known how much is collected at Tribal facilities. About one-third of the IHS system facilities are Tribal facilities. Thus there is a lack of information to test the assumption that less than a quarter of the health care costs are paid by Medicaid, and that the 'Medicaid fraction' varies negligibly across facilities in different IHS Areas. Determination of the 'Medicaid fraction' is critical because to the extent to which the 25% fraction is too high, underestimates the remaining unmet health care need of the AIAN, the extent to which the 25% fraction is too low overestimates the unmet health care need.

We previously analyzed Medicaid MSIS online data for 2005 on paid claims to IHS system providers on a state-by-state basis for 2005 (*American Indian and Alaska Native Medicaid Program and Policy Statistics, 2009*). That aggregate data could not be used to determine the payments made to all providers for Medicaid enrolled IHS system users. Furthermore the state level data could not be aggregated in a way that allowed determination of payments at the IHS Area level. We therefore next analyzed data extracted from the MSIS data into analytical files for 2004 and determined per capita payments to all providers for AIAN who had IHS Program claims in

each IHS Area (*American Indian and Alaska Native Medicaid Program and Policy Data, 2010*). This data could also be compared to per capita payments for AIAN who did not have such claims and were likely not to have access to the IHS system. It could also be compared to per capita payments for non-Hispanic Whites living in the same counties.

We found in those studies that Medicaid data by itself cannot identify all Medicaid-enrolled IHS system users. Medicaid-enrolled IHS system users who do not have an IHS Program claim cannot be identified as IHS system users. Though increasing amounts of Medicaid claims data are identifiable for IHS system providers because states receive 100% reimbursement for the "IHS Program" claims they pay, we still found 19 out of 35 states with IHS system providers that reported no IHS Program claims. It is important to determine how large this group of Medicaid enrollees is to help total numbers of Medicaid-enrolled IHS system users and their Medicaid and CHIP payments. It is also possible that IHS and Tribal facilities are not succeeding in billing and collecting for all of their Medicaid enrolled user population. Without Medicaid data linked to IHS data it could not be determined the extent to which these combined phenomena were affecting estimates of total payments for Medicaid-enrolled IHS system users.

In order to get a more complete picture of payments for AIAN users of the IHS system requires Medicaid data linked with IHS registry data for the AIAN Active User population. With such linked data it is possible to determine Medicaid payments for the IHS system user population identified by both agencies. With knowledge of payments for AIAN Medicaid recipients also in the IHS registry data, we can now estimate the fraction of total health care costs of the IHS user population paid by Medicaid and Medicaid-CHIP programs. The assumption that the payments vary little enough to ignore the variation across IHS Areas and eventually across operating units can then be tested.

Purpose of this Report

The first objective of this report to determine how much the amount that Medicaid (including the Medicaid portion of CHIP not operated by states alone) pays for the personal health care services of AIAN who rely on the IHS system of health care providers (IHS AIAN) varies across the 12 IHS Areas using Medicaid data linked to IHS registry data. To achieve this objective it is necessary to evaluate unadjusted payments by IHS Area and then adjust the payments across the Areas to make them as comparable as possible. Standard analytical approaches that have been used in this report include: 1) adjusting differences in payments with widely used actuarial (statistical) techniques (such as for differences with age and gender); 2) separate analyses for unavoidable biases in payments (for example, because of the different role of Medicare in payments for Medicaid recipients under age 65 and over age 65, the payments are stratified for the two groups and never combined); 3) exclusion of small but variable numbers of recipients with unavoidable biases in payments that cannot be analyzed separately (such as enrollees with Restricted benefits); and 4) parallel analyses of Self-declared (race) AIAN and Non-Hispanic White Medicaid enrollees from *the same counties* as the IHS AIAN to account for unavoidable biases that cannot be treated by any of the other averages (such as differences in state Medicaid program benefits).

The second objective of this report is to determine how much the fraction of the total personal health care costs of the AIAN Active User population of the IHS system covered by Medicaid payments varies across IHS Areas. For this aim the appropriate Medicaid payment data identified in pursuit of the first objective, is fed into the IHS calculations of the unmet health care need used in determining allocations of the Health Care Improvement Fund. By doing this for each IHS Area the variation in the 'Medicaid fraction' paid for Medicaid-enrolled IHS Active Users as a fraction of total costs for all IHS Active Users can be estimated.

The third objective is to determine whether there are subgroups of AIAN who rely on the IHS system (IHS AIAN) that have low Medicaid payment levels. Where the adjusted payment levels for IHS AIAN are not as high as those of others in the same Area, it can be because IHS AIAN have more difficulties obtaining Medicaid paid care, or because the state and IHS system provider need to work more closely to see that Medicaid claims are filed and paid successfully. If IHS system providers do not file and collect claims for services provided to Medicaid enrolled AIAN they serve, they are in effect substituting IHS funding for Medicaid funding of health care costs. In this report, analyzing Medicaid data that has been linked with IHS registry data allows examination of three IHS AIAN subgroups who received Medicaid paid services and were served by the IHS System: 1) IHS AIAN recognized by both Medicaid and IHS data systems (IHS Active User Medicaid recipients with Medicaid IHS Program claims), 2) IHS AIAN found only from IHS system claims in the Medicaid data system (Medicaid recipients, but not IHS Active Users), and 3) IHS AIAN recognized by the IHS data system, but without IHS system claims in the Medicaid data system (IHS Active User Medicaid recipients without Medicaid IHS Program claims).

Methods

In this section we describe technical issues regarding the Medicaid and IHS linked data and its analysis in this report. The term 'Medicaid data' in this report includes both Medicaid and CHIP data in state Medicaid programs (M-CHIP), but not CHIP data for state-only CHIP programs. Medicaid and M-CHIP data are combined because, 1) there are small numbers of AIAN found to have CHIP coverage in the IHS Areas in our past studies (*American Indian and Alaska Native Medicaid Program and Policy Data*, 2010); 2) there is no State-only CHIP program data uniformly collected by Medicaid; and 3) Medicaid expansion CHIP program data is required of Medicaid state programs and is included in Medicaid data. Those readers interested in separate Medicaid and M-CHIP data specific to each IHS Area for 2006 presented in exactly the same format as we did for 2004 data in 2010, please see the separate companion document we prepared with the enriched (linked) data used in this report: *AIAN Medicaid Data Linked to Indian Health Service Data: Medicaid and CHIP Enrollment, Service Use and Payments,* 2011.

Data Sources

Medicaid-IHS Linked Person Summary File

In 2011 we linked the CMS federal Medicaid/CHIP (MAX) Person Summary File for Calendar Year (CY) 2006 to IHS registration data from the IHS National Data Warehouse (NDW). The methods and linkage, and the resultant contents of the data file created are described in *Integrating Medicaid and Indian Health Service Data,* 2011. The MAX Person Summary Files included in the linkage were state files for the 35 states with IHS Contract Health Service Delivery Area (CHSDA) counties.

Medicaid Inpatient, Prescription Drug and Other Services Claims Files

The CMS-IHS linked Person Summary File made in 2011 was merged with MAX Inpatient, Prescription Drug and Other Services claims files for Calendar Year (CY) 2006 by MAX identification numbers. Claims paid for services in Fee-for-Service (FFS) delivery of care systems, and for premiums paid in capitated (CAP) systems were provided for services that occurred in CY2006. Payments processed through May 2007 were included in the MAX claims files, however. In this way adjustments for adjudicated claims or payments among multiple payers are likely to have been resolved so that payments represent amounts as close to 'final' as possible. In addition diagnostic information was provided with paid claims in FFS delivery of care systems, and with encounter records in CAP managed care plan systems.

Analysis Groups

IHS AIAN

The linkage of IHS registry and Medicaid data files in 2011 resulted in three groups of Medicaid enrollees who obtain services from IHS programs ('IHS AIAN'), two of which had Medicaid claims from Indian health program providers for IHS 'covered' services in 2006, and a third group of which did not:

IHS Active Users who are Medicaid Recipients with IHS Medicaid Claims

IHS AIAN in Group 1 are Medicaid enrollees with Medicaid claims from IHS or Tribal Indian (I/T) healthcare providers in the state who have designated by the state/tribe/Indian provider as AIAN whose Medicaid IHS Program claims for IHS 'covered' services are eligible for 100% matching funds from the federal Medicaid program (100% FMAP).

IHS AIAN in Group 1 were found to be defined by the IHS as AIAN 'Active Users' in their data registry system. These IHS Active Users have had a medical or dental visit from an Indian healthcare provider within a period of three years. A '2006 IHS AIAN Active User' had at least one visit to an IHS, tribal or Urban Indian health program service provider between October 1, 2004 and September 30, 2006.

Table 1. Analysis groups resulting from linkage of Indian Health Service (IHS) and Medicaid (MAX) data sources.

Analysis Groups	Includes	Definition
IHS AIAN	1. Medicaid 'IHS Program' Recipients & IHS 'Active Users'	Medicaid Enrollees who meet both the definition of IHS Program Recipients & IHS Active Users in a given year
	2. Medicaid 'IHS Program' Recipients	Medicaid Enrollees with at least one paid claim for an 'IHS Program' provided service
	3. IHS 'Active Users' who are Medicaid Recipients	IHS Active Users had at least one medical service from an IHS system provider in 3 years according to IHS, but there is no Medicaid paid claim for an 'IHS Program' provided service in the year of analysis

Medicaid Recipients with IHS Medicaid Claims not found in IHS Active User Registry

IHS AIAN in Group 2 are Medicaid enrollees with IHS Program claims for IHS 'covered' services from an I/T provider as in Group 1, but they were not found in the IHS data registry system as IHS AIAN Active Users. These enrollees may not link as IHS Active Users because: 1) federal Medicaid criteria for IHS Program users are not the same as IHS criteria for AIAN Active Users and these enrollees meet the federal Medicaid criteria; 2) the method of the state Medicaid program for meeting federal Medicaid criteria for IHS Program users subject to 100% FMAP is not sufficiently specific; 3) not all IHS Active Users have a record in the IHS NDW (the number of 2006 IHS Active Users in the NDW is 86% of the total 2006 IHS Active User count).

IHS Active Users who are Medicaid Recipients but have no IHS Medicaid Claims

IHS AIAN in Group 3 were Medicaid enrollees with Medicaid claims (recipients) found to be defined by the IHS as AIAN 'Active Users' in the IHS data registry system, but without any IHS Program claims in the Medicaid data. These Medicaid enrollees may link to the IHS Active User data because: 1) they used an IHS or tribal health program at least once in 2004 or 2005, but not in 2006; 2) they could have used an IHS or tribal health program in 2006 but the encounter did not result in a Medicaid paid claim (perhaps because the IHS Program provider was a Medicaid managed care network provider and received a payment from the managed care plan not Medicaid); or 3) they could have used an Urban Indian health program which are included in IHS Active User

determination, but not Medicaid IHS Program use determination (only IHS and Tribal health programs are included in Medicaid determinations of claim payments eligible for 100% FMAP).

In addition to IHS AIAN, two other groups of Medicaid enrollees from *the same counties* as the IHS AIAN (Self-declared AIAN and Whites) were constructed for parallel analyses with IHS AIAN in an attempt to account for unavoidable biases that cannot be treated by any of the other averages (such as differences in state Medicaid program benefits).

The 'Self-declared AIAN' (or 'Other AIAN') were Medicaid enrollees with a self-declared race code of "AIAN" who had Medicaid claims, but did not have any IHS Program Medicaid claims and did not link to the IHS Active User registry. Since these AIAN live in the counties of the service delivery areas of Indian healthcare providers (IHS CHSDA Counties) they can be AIAN who do not meet the stricter criteria of 'AIAN' required by the local tribes or IHS Program provider to be able to receive IHS covered services at no charge. They could also be AIAN who do meet the stricter criteria of 'AIAN' but do not choose to use an IHS or tribal health program, or who require more specialized or institutional care not provided by the IHS Program or its Contract Health Service system. These Medicaid enrollees may also have failed to link to the IHS registry because of data limitations of the Medicaid and IHS data systems for a linkage (accurate and complete data for Social Security Number, date of birth and gender).

The "Whites" were Medicaid enrollees with a self-declared race code of "White" and no "Hispanic" ethnicity code selected at random from the same counties of the IHS healthcare system as the IHS AIAN groups (IHS CHSDA Counties). The sampling procedure is described in the 2011 report *Integrating IHS and Medicaid Data .* For this analysis the White enrollees are restricted to Medicaid recipients with Medicaid claims, since the AIAN groups had to have claims to be defined. Recipients have used at least one Medicaid paid service.

Analysis Plan

The questions to be answered by the analyses are, 1) What variables determine the average payment per recipient for IHS AIAN in the IHS Areas? and if those factors are adjusted, 2) What are the adjusted average payments for IHS AIAN across the 12 IHS Areas? And 3)How can those average payments for Medicaid-eligible IHS AIAN be used to determine what Medicaid pays for IHS AIAN Active User health care costs? In this Methods section we restrict the study groups in a systematic way step by step making the analytical groups more homogeneous and more and more representative of the groups we average to compare. We then build models that adjust for factors that affect payments within the groups of recipients. Finally we combine adjusted payments for the groups in each IHS Area.

Outcome of Analysis: Average Total Payment per Medicaid Recipient

The analysis is governed by selection of the dependent – or outcome – variable used in the analyses to measure payments. Particular care has been taken to target the Average Payment per Person measure that is most relevant to the goal that we were commissioned to investigate: identify the contributions of characteristics of the IHS AIAN, state Medicaid programs and the IHS system of healthcare to Medicaid program payments for medical, dental and behavioral health care of IHS AIAN and adjust for those that have substantial effects on the payment outcome and differ by IHS Area.

Because of the varying role of private insurance in total payments for Medicaid claims in certain IHS Areas (in particular, Nashville Area) we include Third Party Payments in the outcome measure for the analyses and analyze the Total Payment to avoid bias in analyses across IHS Areas (Attachment Table C.1). Third Party

Payments for Medicaid and CHIP program claims can be paid in part by third parties, rather than the Medicaid or CHIP programs themselves. Third Party Payments for Medicaid program claims are mainly private insurance payments for Medicaid enrollees under age 65, and Medicare payments for those over age 65.

Because of differences in systems of claims and payments for acute medical care in Fee-for-Service (FFS) and capitated Comprehensive Managed Care Plans (CMCP, medical managed care plans), we analyze results separately for these two groups. Within each group, however, we sum paid claims and monthly premium (Capitated) paid claims for Prepaid Health Plans (PHP, behavioral health and dental managed care plans) for both FFS and CMCP recipients, and Primary Care Case Management (PCCM), for some enrollees in FFS medical care). Enrollees with total payments less than $1 were excluded since claims with Medicaid payments of $0 and negative values (adjustments to prior paid claims) were included in MAX data (Attachment Table C.3). Outlier values for Medicaid payments (top 1%) were excluded because of the added skew to average values while in practice these outliers are usually relegated to reinsurance mechanisms of payment.

Characteristics Affecting the Outcome

Institutionalized and Longterm Care

Medicaid Enrollees in institutionalized and longterm care are excluded from analysis because their care includes services related to living expenses that are not acute medical or dental care. Longterm care and institutionalized enrollees include the elderly who need assistance for daily living, as well as the developmentally disabled and longterm psychiatric inpatients. When payments for longterm care and institutionalized enrollees are excluded from Total Payments, what remains is the breadth of medical and dental care covered by Medicaid for acute medical episodes of care. Total payments per enrollee for the Medicaid covered service are more than 10 times as high as the medical and dental acute care services per enrollee (See Table 2). As a result, small differences in institutionalized and longterm care payments can make large differences in average Total Payment per Enrollee. For example, when longterm and institutionalized care payments are included, the average payment for IHS AIAN is $4,314 (95% Confidence Limits, C.L. $4,274 and $4,354) which is lower than the $4,785 average payment for Whites (C.L. $4,758 and $4,812). But when longterm and institutionalized care payments are excluded, the average payment for IHS AIAN is higher $3,759 (C.L. $3,725 and $3,794) than the $3,058 average payment for Whites (C.L. $3,040 and $3,076). Furthermore only 1% of IHS AIAN who are Medicaid enrollees use Medicaid covered longterm care, while 5% of Whites do (calculated using numbers in Table 2). For IHS Area-specific average Total Payments per Enrollee including longterm and institutionalized care see Attachment Table C.1. For numbers and payments for enrollees with longterm and institutionalized care in each Area see Attachment Table C.2.

Table 2. Average Medicaid and Third Party payments per Medicaid enrollee with and without institutionalized and other long-term care for the main study groups. The lower and upper 95% Confidence Limits of each average are shown.

		Total Payment per Enrollee					
		Medicaid		Third Party		Total	
Analysis Groups*	Enrollees*	Mean	+/- C.L.	Mean	+/- C.L.	Mean	+/- C.L.
Longterm & Institutional Care							
IHS AIAN	8,337	$ 38,414	$ 308	$ 200	$ 13	$ 38,614	$ 308
Self-declared AIAN	4,488	$ 37,137	$ 892	$ 187	$ 58	$ 37,324	$ 894
Whites, Non-Hispanic	64,831	$ 45,771	$ 1,818	$ 167	$ 38	$ 45,939	$ 1,819
Other Enrollees							
IHS AIAN	550,016	$ 3,732	$ 34	$ 27	$ 5	$ 3,759	$ 35
Self-declared AIAN	176,046	$ 2,576	$ 66	$ 23	$ 3	$ 2,599	$ 66
Whites, Non-Hispanic	1,232,415	$ 2,995	$ 17	$ 63	$ 8	$ 3,058	$ 18

**The state of Arizona could not be included because of the large numbers of enrollees in longterm care without data on payments.*

Enrollees with no Payments

Medicaid Enrollees with no Medicaid Payment are excluded from analysis, and thus the outcome variable is Average Total Payment per Recipient, not per Enrollee. Medicaid program payments depend on whether an enrollee has a Medicaid paid service or not. Enrollees must have a Medicaid paid claim to have any Medicaid payment regardless of whether that claim is paid to a provider for a medical or dental service, or to a managed care plan for a monthly premium. Two of the IHS AIAN subgroups in Table 1 were required to have at least one Medicaid paid claim by definition, 'Medicaid Enrollees with IHS Program Claims' (those who were IHS Active Users, and those who were not). As a result the percent of IHS AIAN who had $0 Total Payments was 10%, while for the two comparison groups Self-declared AIAN and Whites, 13% of the Medicaid enrollees had $0 Total Payments. Furthermore within IHS Areas the percents of IHS AIAN with $0 Total Payments varied from a low of 1% in California to a high of 20% in Phoenix and Tucson (Attachment Table C.3). Thus to avoid the bias created when analysis groups have varying proportions of enrollees with no Medicaid paid claims, we exclude Medicaid Enrollees with $0 Total Payments. The enrollees who remain are termed 'Recipients' of services by CMS we therefore analyze Total Payment per Recipient for all analysis groups where a Recipient is a Medicaid Enrollee who receives at least one paid service claim or one month's premium paid for managed care. Operationally the enrollee exclusion criterion technically was enrollees with Total Payments less than $1. Though all payments in MAX data were rounded to the nearest dollar, there were some claims of less than $0 as a result of payment adjustments removing all Medicaid payments for the year.

Table 3. Average Medicaid and Third Party payments per Medicaid enrollee of the main study groups with and without enrollees with zero dollar total Medicaid payments for the year. The 'Average Payments per Enrollee' excluding 'Enrollees with Zero Dollar Payments for the year' are the same as 'Average Payments Per Recipient.' The 95% Confidence Limits are also shown.

		Total Payment per Enrollee					
		Medicaid		Third Party		Total	
	Enrollees*	Mean	+/- C.L.	Mean	+/- C.L.	Mean	+/- C.L.
Excluding Enrollees with Zero Dollar Payment for the year*							
IHS AIAN	495,629	$ 4,141	$ 38	$ 31	$ 6	$ 4,172	$ 38
Other AIAN	153,452	$ 2,956	$ 76	$ 26	$ 3	$ 2,982	$ 76
Whites, Non-Hispanic	1,073,924	$ 3,437	$ 19	$ 72	$ 9	$ 3,509	$ 21
Including Enrollees with Zero Dollar Payment for the year*							
IHS AIAN	550,016	$ 3,732	$ 34	$ 27	$ 5	$ 3,759	$ 35
Other AIAN	176,046	$ 2,576	$ 66	$ 23	$ 3	$ 2,599	$ 66
Whites, Non-Hispanic	1,232,415	$ 2,995	$ 17	$ 63	$ 8	$ 3,058	$ 18

**Enrollees have payments of zero (or negative) dollars if they receive no services, have no paid claims or premiums, or only adjustments are made to previous payments. Enrollees with non-zero dollar payments for the year are known to be 'Recipients' of Medicaid paid services during the year.*

To determine the average Total Payment per Enrollee for any group, all that need be done is multiply the average Total Payment per Recipient by the number of Recipients in the group and divided by the total number of Enrollees in the group. This calculation is the same as multiplying the average Total Payment per Recipient times the percent of Enrollees who are Recipients (or 100% minus the percent of Enrollees who are not Recipients). The proportions of Enrollees who are not Recipients are in Attachment Table C.3, and the average Total Payment per Recipient are provided for the analysis groups in each IHS Area in Attachment Table C.4.

Enrollment for Less than 12 Months

Analyses are done separately for Medicaid Recipients enrolled the full 12 months of the year, and for those enrolled any number of months. The Average Total Payment per Year for Recipients enrolled all 12 months of the year is greater than that for Medicaid Recipients enrolled less than 12 months because of shorter time of coverage (Table 4). However when analyzed as Average Total Payment per Month, the average payment for Medicaid Recipients enrolled less than 12 months is systematically larger than for Recipients enrolled all 12 months. Reasons offered for this bias found in many studies of program enrollees is that there is a 'pent up demand' for medical service in enrollees who start coverage during the year, and there is a high utilization at end of life that occurs for enrollees who die during the year. Varying months of enrollment and differences amounts of enrollment in managed care plans can affect this phenomenon. This phenomenon was found to occur for IHS AIAN ($424 and $505 per Recipient per Month with non-overlapping 95% Confidence Limits, C.L.) and Self-declared AIAN ($310 and $410 per Recipient per Month with non-overlapping C.L.), but was reversed for Whites ($379 and $371 per Recipient per Month with non-overlapping C.L.) (Table 4). To avoid potentially unadjusted differences between the groups behind the phenomenon, data for Medicaid Recipients enrolled 12 months is analyzed separately from those enrolled less than 12 months. For IHS Area-specific values for the numbers of recipients and Average Total Payment per Year for Recipients enrolled 12 months and enrolled less than 12 months see Attachment Tables C.5 and C.6.

Table 4. Average Medicaid and Third Party payments per Medicaid recipient divided between those enrolled all 12 months, and those enrolled less than 12 months for the main analysis groups. The 95% Confidence Limits are also shown.*

		Medicaid		Third Party		Total	
Analysis Groups	Recipients*	Mean	+/- C.L.	Mean	+/- C.L.	Mean	+/- C.L.
Recipients* enrolled 12 months				Annual Payment per Recipient			
IHS AIAN	271,509	$ 5,086	$ 57	$ 42	$ 10	$ 5,128	$ 58
Self-declared AIAN	83,156	$ 3,721	$ 120	$ 35	$ 5	$ 3,756	$ 120
Whites, Non-Hispanic	588,629	$ 4,551	$ 31	$ 104	$ 15	$ 4,656	$ 34
Recipients* enrolled Less than 12 months							
IHS AIAN	224,120	$ 2,997	$ 47	$ 17	$ 4	$ 3,014	$ 47
Self-declared AIAN	70,296	$ 2,050	$ 84	$ 16	$ 3	$ 2,066	$ 85
Whites, Non-Hispanic	485,295	$ 2,085	$ 19	$ 33	$ 4	$ 2,118	$ 19
Recipients* enrolled 12 months				Monthly Payment per Recipient			
IHS AIAN	271,509	$ 424	$ 5	$ 3	$ 1	$ 427	$ 5
Self-declared AIAN	83,156	$ 310	$ 10	$ 3	$ 0	$ 313	$ 10
Whites, Non-Hispanic	588,629	$ 379	$ 3	$ 9	$ 1	$ 388	$ 3
Recipients* enrolled Less than 12 months							
IHS AIAN	224,120	$ 505	$ 10	$ 3	$ 1	$ 507	$ 10
Self-declared AIAN	70,296	$ 410	$ 23	$ 3	$ 1	$ 413	$ 23
Whites, Non-Hispanic	485,295	$ 371	$ 5	$ 7	$ 1	$ 378	$ 5

**Only enrollees who are recipients of services are included because analyses exclude enrollees with zero dollar Medicaid payments.*

Table 5. Average Medicaid and Third Party Payments per Recipient divided between those Less than 65 years of age and 65 years or more for the main analysis groups. The 95% Confidence Limits are also shown.*

Analysis Groups	Recipients	Medicaid Mean	Medicaid +/- C.L.	Third Party Mean	Third Party +/- C.L.	Total Mean	Total +/- C.L.
		Less than 65 years of Age					
Recipients* enrolled 12 months		Annual Payment per Recipient					
IHS AIAN	254,278	$ 5,008	$ 60	$ 33	$ 9	$ 5,041	$ 60
Self-declared AIAN	79,019	$ 3,656	$ 125	$ 30	$ 5	$ 3,686	$ 125
Whites, Non-Hispanic	528,997	$ 4,440	$ 33	$ 98	$ 17	$ 4,538	$ 37
Recipients* enrolled Less than 12 months							
IHS AIAN	220,745	$ 2,979	$ 47	$ 15	$ 3	$ 2,993	$ 47
Self-declared AIAN	69,131	$ 2,038	$ 86	$ 14	$ 2	$ 2,052	$ 86
Whites, Non-Hispanic	468,157	$ 2,048	$ 19	$ 29	$ 4	$ 2,076	$ 20
Recipients* enrolled 12 months		Monthly Payment per Recipient					
IHS AIAN	254,278	$ 417	$ 5	$ 3	$ 1	$ 420	$ 5
Self-declared AIAN	79,019	$ 305	$ 10	$ 2	$ 0	$ 307	$ 10
Whites, Non-Hispanic	528,997	$ 370	$ 3	$ 8	$ 1	$ 378	$ 3
Recipients* enrolled Less than 12 months							
IHS AIAN	220,745	$ 499	$ 10	$ 2	$ 0	$ 502	$ 10
Self-declared AIAN	69,131	$ 407	$ 23	$ 3	$ 1	$ 411	$ 23
Whites, Non-Hispanic	468,157	$ 363	$ 5	$ 6	$ 1	$ 369	$ 5
		65 years of Age & Over					
Recipients* enrolled 12 months		Annual Payment per Recipient					
IHS AIAN	17,228	$ 6,230	$ 194	$ 178	$ 88	$ 6,408	$ 214
Self-declared AIAN	4,134	$ 4,964	$ 285	$ 137	$ 54	$ 5,102	$ 292
Whites, Non-Hispanic	59,521	$ 5,540	$ 76	$ 158	$ 33	$ 5,698	$ 84
Recipients* enrolled Less than 12 months							
IHS AIAN	3,322	$ 4,208	$ 476	$ 148	$ 151	$ 4,356	$ 524
Self-declared AIAN	1,034	$ 2,919	$ 443	$ 161	$ 105	$ 3,080	$ 461
Whites, Non-Hispanic	16,191	$ 3,165	$ 118	$ 165	$ 54	$ 3,330	$ 132
Recipients* enrolled 12 months		Monthly Payment per Recipient					
IHS AIAN	17,228	$ 519	$ 16	$ 15	$ 7	$ 534	$ 18
Self-declared AIAN	4,134	$ 414	$ 24	$ 11	$ 5	$ 425	$ 24
Whites, Non-Hispanic	59,521	$ 462	$ 6	$ 13	$ 3	$ 475	$ 7
Recipients* enrolled Less than 12 months							
IHS AIAN	3,322	$ 846	$ 153	$ 21	$ 17	$ 867	$ 155
Self-declared AIAN	1,034	$ 557	$ 106	$ 26	$ 15	$ 583	$ 108
Whites, Non-Hispanic	16,191	$ 597	$ 35	$ 35	$ 14	$ 632	$ 38

Medical Fee-for-Service and Capitated Care

Data is analyzed separately for recipients whose Medicaid paid medical care is provided Fee-for-Service (FFS) and those whose is provided through a capitated Comprehensive Managed Care Plan (CMCP). Much of Medicaid covered care has in recent years become managed by health care plans to lower Medicaid payments. Even recipients in FFS medical care may have monthly capitated premiums paid for Primary Care Case Management (PCCM), or behavioral or dental Prepaid Health Plans (PHP). For enrollment of AIAN in CMCP, PHP and PCCM in the IHS areas see *Integrating Medicaid and Indian Health Service Data, 2011* .

When medical care is paid through monthly capitated premiums to CMCP, hospital care may or may not be included. Thus hospital services may be paid FFS for CMCP enrollees. CMCP also vary in their breadth of other optional Medicaid services covered as well. CMCP may or may not include behavioral health or dental services.

Enrollees in CMCP may or may not also have monthly capitated premiums paid for behavioral or dental Prepaid Health Plans (PHP). Alternatively these services not covered in CMCP plans may like hospital care be paid through FFS claims. When CMCP recipients are not enrolled in a CMCP for all the months they are enrolled in Medicaid, they can also have FFS claims for services.

In analyses of Medicaid payments it is thus important to adjust for the effect of capitated CMCP payments in groups of Recipients. We thus analyzed Average Total Payments for Recipients with 12 months enrollment but no CMCP (that is, 12 months of FFS care, which *can* also include PCCM, or Dental or Behavioral Health PHP), or with any months of CMCP (Table 6). The numbers of recipients with 12 months enrollment in Medicaid but less than 12 months enrollment in CMCP was too small a group to be analyzed separately. The numbers of recipients for the IHS Areas are shown in Attachment Table C.7 (all ages combined). The payments for recipients in only FFS medical care in the IHS Areas are shown in Attachment Table C.8, and for those with any CMCP in Attachment Table C.9. Values for the hospital, other medical, prescription drug and dental FFS payments, as well as for PCCM, Dental and Behavioral Health PHP premiums are provided in Attachment Tables C.8 and C.9.

Table 6. Average Medicaid and Third Party payments per Medicaid recipient enrolled 12 months divided into those not enrolled in any Comprehensive (medical) Managed Care Plan (CMCP), those enrolled less than 12 months in CMCP and those enrolled 12 months in CMCP for the main study groups. The 95% Confidence Limits for each average value are also shown.

		Annual Payment per Recipient							
		Medicaid		Third Party		Total			
Analysis Groups	Recipients	Mean	+/- C.L.	Mean	+/- C.L.	Mean	+/- C.L.		
Recipients not enrolled in medical managed care (CMCP)									
IHS AIAN	237,019	$ 5,114	$ 64	$ 48	$ 12	$ 5,161	$ 65		
Self-declared AIAN	61,669	$ 3,751	$ 134	$ 46	$ 7	$ 3,796	$ 134		
Whites, Non-Hispanic	371,592	$ 4,872	$ 46	$ 163	$ 24	$ 5,035	$ 53		
Recipients enrolled less than 12 months in medical managed care (CMCP)									
IHS AIAN	13,861	$ 4,886	$ 178	$ 6	$ 2	$ 4,892	$ 178		
Self-declared AIAN	4,784	$ 3,576	$ 209	$ 14	$ 14	$ 3,589	$ 210		
Whites, Non-Hispanic	51,114	$ 3,594	$ 52	$ 13	$ 2	$ 3,607	$ 52		
Recipients enrolled 12 months in medical managed care (CMCP)									
IHS AIAN	20,629	$ 4,897	$ 119	$ 1	$ 0	$ 4,898	$ 119		
Self-declared AIAN	16,703	$ 3,655	$ 326	$ 1	$ 1	$ 3,656	$ 326		
Whites, Non-Hispanic	165,923	$ 4,129	$ 26	$ 1	$ 0	$ 4,130	$ 26		

While payments per recipient under age 65 are lower for every analysis group with CMCP when compared to those with FFS medical care (Table 6), the differences are not large. What is striking is the smaller proportions of AIAN in CMCP than Whites who live in the same counties. This we find depends on the IHS Area (See Attachment Table C.9.) Over age 65, the numbers of AIAN Recipients in CMCP is small for all groups, but particularly the AIAN groups (Table 6).

Restricted Benefits

Enrollees with Restricted Benefits were excluded from the analyses. Enrollees in certain Medicaid enrollment categories are only eligible for a restricted portion of the full scope of medical benefits: For example, women eligible only because they are pregnant (but not women who are eligible for Medicaid or CHIP and become pregnant), certain groups of Medicare-Medicaid Dual eligibles, enrollees in pharmacy only or other specially approved state 'waiver' programs. We found small numbers of Medicaid enrollees with Restricted Benefits (Table 7), and therefore cannot do a separate analysis for these enrollees. Adjusting analyses of the average

Total Payments per Person for Restricted Benefits in the models described below had small if any effects. We therefore excluded enrollees with Restricted Benefits from the analyses we present here.

Table 7. Average Total Payments per Recipient for enrollees with 12 months Fee-for-Service (FFS) medical care with or without managed care (PCCM, CMCP and Dental & Behavioral Health Prepaid Health Plans, PHP) paid per Medicaid recipient with Full Benefits all 12 months or at least one month of Restricted Benefits for the main study groups. The 95% Confidence Limits for each average value are also shown.

		Annual Payment per Recipient					
		Medicaid		Third Party		Total	
Analysis Groups	Recipients	Mean	+/- C.L.	Mean	+/- C.L.	Mean	+/- C.L.
		Less than 65 years of Age					
Recipients not enrolled in medical managed care (Fee-For Service, FFS)							
IHS AIAN	220,368	$ 5,035	$ 67	$ 37	$ 11	$ 5,073	$ 68
Self-declared AIAN	57,865	$ 3,683	$ 141	$ 39	$ 7	$ 3,722	$ 142
Whites, Non-Hispanic	320,435	$ 4,840	$ 52	$ 160	$ 28	$ 5,000	$ 59
Recipients enrolled less than 12 months in medical managed care (CMCP)							
IHS AIAN	13,666	$ 4,850	$ 179	$ 5	$ 2	$ 4,855	$ 179
Self-declared AIAN	4,719	$ 3,492	$ 200	$ 13	$ 14	$ 3,505	$ 200
Whites, Non-Hispanic	49,932	$ 3,427	$ 50	$ 12	$ 2	$ 3,439	$ 50
Recipients enrolled 12 months in medical managed care (CMCP)							
IHS AIAN	20,244	$ 4,821	$ 107	$ 1	$ 0	$ 4,821	$ 107
Self-declared AIAN	16,435	$ 3,609	$ 331	$ 1	$ 1	$ 3,610	$ 331
Whites, Non-Hispanic	158,630	$ 3,950	$ 26	$ 0	$ 0	$ 3,951	$ 26
		65 years of Age & Over					
Recipients not enrolled in medical managed care (Fee-For Service, FFS)							
IHS AIAN	16,648	$ 6,154	$ 188	$ 183	$ 91	$ 6,337	$ 210
Self-declared AIAN	3,801	$ 4,778	$ 294	$ 148	$ 59	$ 4,926	$ 303
Whites, Non-Hispanic	51,056	$ 5,068	$ 84	$ 182	$ 38	$ 5,251	$ 94
Recipients enrolled less than 12 months in medical managed care (CMCP)							
IHS AIAN	195	$ 7,413	$ 1,107	$ 63	$ 75	$ 7,476	$ 1,107
Self-declared AIAN	65	$ 9,680	$ 5,122	$ 51	$ 59	$ 9,731	$ 5,117
Whites, Non-Hispanic	1,177	$ 10,647	$ 638	$ 32	$ 13	$ 10,680	$ 638
Recipients enrolled 12 months in medical managed care (CMCP)							
IHS AIAN	385	$ 8,928	$ 3,033	$ 1	$ 1	$ 8,929	$ 3,033
Self-declared AIAN	268	$ 6,464	$ 585	$ 2	$ 4	$ 6,466	$ 587
Whites, Non-Hispanic	7,288	$ 8,024	$ 163	$ 5	$ 5	$ 8,029	$ 164

Medical Cost Index

Payments were adjusted using the Medical Cost Index used by the IHS *i*n computing what it would cost to provide equitable services across the 12 IHS Areas (*www.ihs.gov/NonMedicalPrograms/lnf*): This Medical Cost Index is calculated from the Health Care portion of the Cost of Living Index (COLI) published by the Council for Community and Economic Research (C2ER). Indices of regional differences of health care prices are published by C2ER for select counties and metro-areas (*www.coli.org/Method.asp*).

Table 8. Indices of regional differences in health care costs for the IHS Areas calculated by IHS for 2009 using the health care portion of the COLI of the Council for Community and Economic Research.

IHS Area	Health Care Cost of Living Index Scaled
Alaska	1.31
Portland	1.13
California	1.08
Aberdeen	1.02
Billings	1.01
Nashville	1.00
Navajo	0.99
Phoenix	0.99
Tucson	0.99
Bemidji	0.98
Albuquerque	0.97
Oklahoma	0.94

The Health Care portion of their COLI is designed to provide the best possible averages to compare cost of living differences in these areas based on the price of consumer goods and services, but the index has a number of limitations. The data is voluntarily provided by designated organizations. The C2ER states that all price data are obtained from sources deemed reliable and that the C2ER stringently reviews all prices reported, and attempts to eliminate errors and noncompliance with pricing specifications. Still they issue a disclaimer that, 'no representation is made as to the complete accuracy thereof.' In addition there are certain definitional limitations such as that the health care purchases priced are those appropriate for "professional and managerial households in the top income quintile," while Medicaid programs purchase for households in the lowest income quintile of their state. Certainly the greatest limitation is that the price variation largely reflects variation in urban health care prices, which is but an undetermined fraction of the health care purchased by Medicaid for residents of the generally rural CHSDA counties of the IHS Areas.

We used the health care C2ER COLI because it was recommended that the IHS use the health care COLI in the calculation of the IHS Federal Disparities Index by its Contract Health Service workgroup. The workgroup of tribal and technical advisors to the IHS believed it was best available index that could reflect macro differences in health care prices among regions. The determination of the Health Care COLI for the 12 IHS Areas is done by the IHS.

Age and Sex

Medical care payments increase with age, and yet the differences in age of populations among AIAN groups and between AIAN and Whites cannot be changed unless a Medicaid eligibility policy change occurs affecting age groups differently. Age can be coded continuously (in years), or in intervals (5 or 10 year age cohorts). Usually an analytical definition is used to avoid unnecessarily large numbers of interval groups: irregular intervals are used to define age groups with substantially higher payments than the immediate younger group. We will test the use of a Continuous Age variable and an analytical Interval Age Group variable. The adjustment that explains most of the variation in the Average Total Payment will be used in the Core Model.

Medical care payments are generally higher for women than men when the services include reproductive care, and especially higher in Medicaid for women who are pregnant or give birth during the year. Alternatives for gender determinants are 1) Male, Female pregnant, & Female non-Pregnant; or 2) Male, Female, with

adjustment for pregnancy and childbirth services in the Service Coverage variables. The adjustment that explains most of the variation in the Average Total Payment will be used in the Core Model.

Disability as Basis of Medicaid Eligibility and Dual Eligibility with Medicare

Medical care payments are generally higher for blind or disabled individuals. We provided a list of the blind and disabled eligibility categories for Medicaid and for Dual Eligibility with Medicare in *AIAN Medicaid Program and Policy Statistics: Summary Report, 2009 .* The proportions of AIAN Medicaid eligibles who are Disabled or Dual eligibles in each IHS Area are documented in *AIAN Medicaid Program and Policy Data, 2010* .

Risk Adjustment: Morbidity

Medical care costs rise as the number and severity of medical conditions increase. To determine if there are differences in payments not related to illness requires adjusting costs for differences in the morbidity burden among the study groups. This is possible with Medicaid claims tested Risk Adjustment software systems (Winkelman and Dammler, 2008). We used the Adjusted Clinical Groups® (ACG) system developed at The Johns Hopkins University to characterize the concurrent morbidity burden in the AIAN and White Medicaid populations in our study for the time period of the claims (*www.acg.jhsph.org*). With this software demographic, diagnostic and procedure code combinations on 12 continuous months of claims and encounter records were reduced to a fixed number of health status categories called Aggregated Diagnosis Groups.

The ACG system captures interrelationships between co-occurring morbidities that pose the greatest demands for health care resources. ACG actuarial cells are based on Aggregated Diagnosis Groups that are similar in terms of severity and likelihood of persistence of the health condition over time. Diagnostic codes are assigned to one of the 32 clusters of Aggregated Diagnosis Groups. Since individuals can have more than one diagnosis, they may have more than one Aggregated Diagnosis Group. Individual diseases or conditions are placed into a single Aggregated Diagnosis Groups based on five clinical dimensions: 1) Duration of the condition (acute, recurrent, or chronic); 2) Severity of the condition (e.g., minor and stable versus major and unstable); 3) Diagnostic certainty (symptoms versus documented disease); 4) Etiology of the condition (infectious, injury, or other); and 5) Specialty care involvement (e.g., medical, surgical, obstetric, hematology). The Aggregated Diagnosis Groups are then weighted and added so that a single ACG morbidity (risk) score is obtained by each individual.

The ACG system provides an external standard sample of privately insured population in a managed care plan for reference, but the system recommends use of an internal reference group to standardize for unadjusted differences between Medicaid populations and provider claims and privately insured managed care data. We used the random sample of non-Hispanic White Medicaid recipients living in the same counties as the AIAN as the morbidity reference group.

The software is not recommended for use without a 12 month continuous claim history for recipients, and therefore we did not apply it to recipients with less than 12 months enrollment. We did not use the feature of the software that uses pharmacy data because we found that IHS AIAN in the Medicaid data had much lower pharmacy payments than other which is likely due to access to medications through their Indian healthcare providers, which Self-declared AIAN and Whites do not have (see Prescription Drug FFS data in the Findings section).

Statistical Adjustments

To adjust for the effects of determinants on average total payments per recipient, we constructed Generalized Linear Mixed Models of SAS statistical software (version 9.2) using the log-likelihood function, assuming the gamma distribution of the dependent variable (Medicaid payments). We have previously published studies using these methods with Medicaid claims data (*Wong et al, 2006*), including using the ACG risk adjustment (*Korenbrot, Kao & Crouch, 2009*).

Medicaid Enrollee Exclusions were: 1) enrollees with no known months of eligibility, 2) enrollees with longterm or institutionalized care, 3) enrollees with 'Restricted' rather than 'Full' Medicaid benefits, and 4) enrollees with no paid claims of $1 or more. Recipients remaining were then grouped for analytical modeling as in Table 9:

Table 9. Summary of the six stratified analyses performed. Detailed findings for each of the six strata are provided in Attachments F, G, H, I, J and K respectively.

Analyses							
1	2	3	4	5	*	6	*
Recipients Less than 65 years of Age				Recipients Aged 65 & Over			
12 months Enrollment		Any Months of Enrollment		12 months Enrollment		Any Months of Enrollment	
FFS Medical	Capitated Medical	FFS Medical	Capitated Medical	FFS Medical	Capitated Medical	FFS Medical	Capitated Medical
Morbidity Adjustment	Morbidity adjustment	No morbidity adjustment	No morbidity adjustment	Morbidity Adjustment		No morbidity adjustment	

The numbers of recipients in each analytical group are presented in Attachment C by state and IHS Area. All recipients in Analysis 1 are included in Analysis 2, those in Analysis 3 are included in Analysis 4, and those in Analysis 5 are included in Analysis 6.

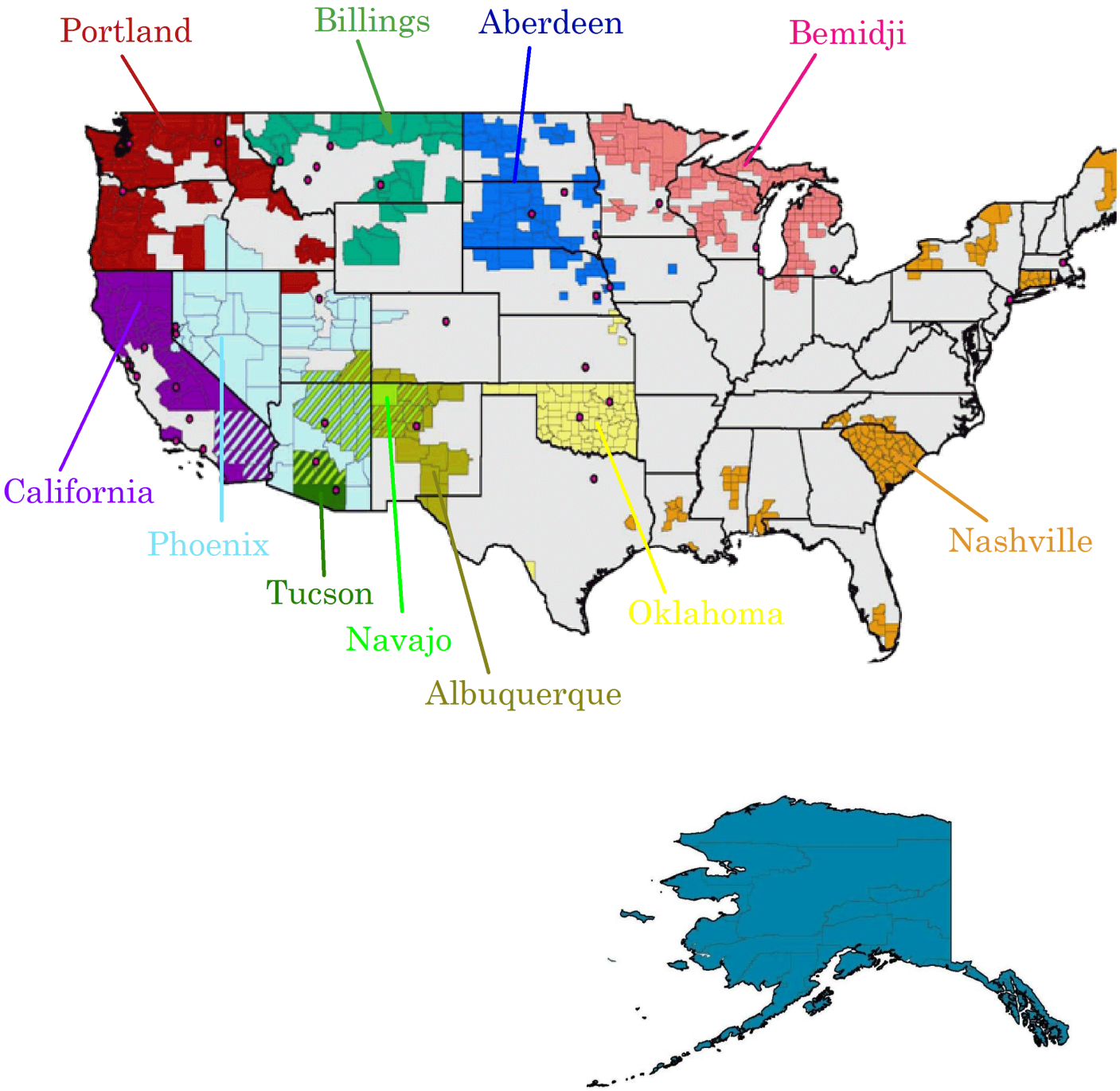
In Analyses 1, 2 and 5 recipients were enrolled in Medicaid 12 months, so the outcome was the Adjusted Average Total Payment per Recipient per Year and the models could be adjusted for morbidity (Attachments E, F and I). In analyses 3, 4 and 6 the recipients could be enrolled less than 12 months in Medicaid and therefore the outcome was the Adjusted Average Total Payment per Recipient *per Month* and the models could not be adjusted for morbidity because there was not a 12 month continuous claims history for all recipients (Attachments G, H and J).

Within each of the 6 series of analytical models the study groups are nested within each of the 12 IHS Areas and adjusted for Age and Sex (interaction terms) and Medicaid Disability and Dual Eligibility Status under age 65 (interaction terms). Morbidity adjustments were included for the groups enrolled 12 months in Medicaid. The first series of six models are for IHS AIAN (Self-declared AIAN and Whites provide the 'County' of residence adjustment). The second series of six models includes three IHS AIAN subgroups, 1) those with IHS Program claims who are also IHS Active Users, 2) those with IHS Program claims who are not also IHS Active Users, and 3) those who are IHS Active Users but did not have any IHS Program claims. Again in this second series of models, Self-declared AIAN and Whites provide the 'County' of residence adjustment. In the models, all effects of the adjustment and variables were significant at the $P<0.001$ level and therefore P values are not represented in the Findings section or Attachments. We do present the 95% upper and lower Confidence Limits of the Adjusted Average Payment calculated by the models in the Attachments F to K.

To summarize the outcomes for the IHS AIAN population of Medicaid Recipients enrolled all year, the adjusted average payments for Analyses 1, 2 and 5 were each combined in a weighted average of the adjusted average payments: the numbers of Medicaid Recipients (under age 65 in FFS and capitated medical care, and over age 65 in FFS medical care), were multiplied by the Adjusted Average Total Payment per Recipient, and the three sums of payments divided by the total number of Recipients in the three groups to determine the weighted average (expected value) for the Recipients in each IHS Area. To summarize the outcomes for the IHS AIAN population of Medicaid Recipients enrolled any number of months, the adjusted average payments for Analyses 3, 4 and 6 were treated the same way.

Findings are presented for IHS service delivery areas. We do not breakdown the findings by state within the IHS Areas because the numbers of the AIAN living in the CHSDA counties with Medicaid claims for IHS Program services are not large enough in many states to give statistically reliable findings (see the initial tables in Attachments F to I for state by state numbers). Not all states report IHS Program claims separate from other claims (see *American Indian and Alaska Native Medicaid Program and Policy Statistics: Summary Report 2009*) and many states do not capture all IHS Program claims for IHS AIAN.

Map 1. 12 IHS Areas: Contract Health Service Delivery Area (CHSDA) Counties 2006

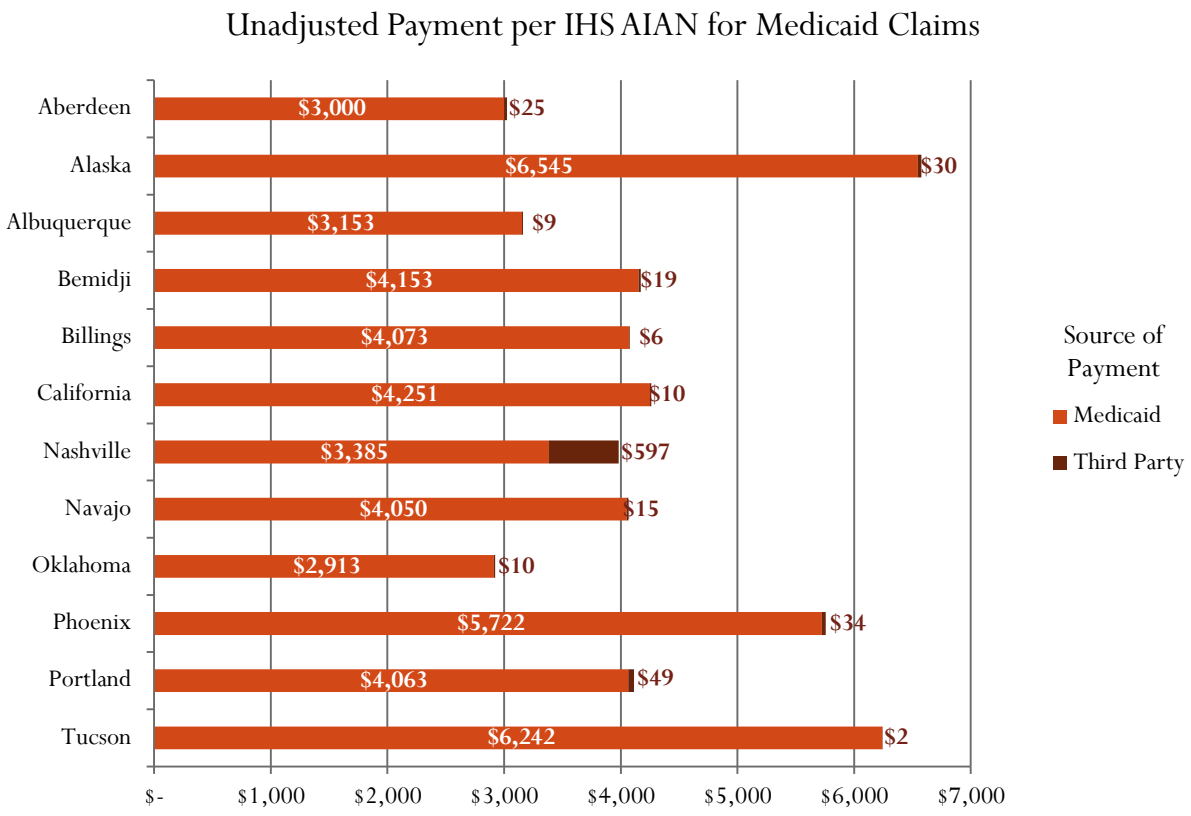


Findings

Characteristics of IHS AIAN and their Medicaid Payments Vary across IHS Areas

Payments per IHS AIAN for Medicaid claims that are unadjusted are expected to vary across IHS Areas because of a number of well-known differences among the IHS Areas that affect the payments, including such things as differences in age and gender distributions of the Medicaid populations. But before adjusting the payments we examine what data are included in the payments and Medicaid populations and how the data vary among the IHS Areas. Unadjusted average (average) payments per Medicaid recipient varied more than two-fold from a low of $2,923 in Oklahoma Area to $6,575 in Alaska Area (Figure 1). Medicaid was the source of payment for nearly the total amount paid for the claims in all Areas except Nashville. In the Nashville Area 15% of the amount paid for Medicaid claims was paid by third-parties (mostly private insurance). To provide comparable findings for all Areas including Nashville Area, Third Party payments for Medicaid claims are included in the findings for 'Medicaid payments' both unadjusted and adjusted for all Areas.

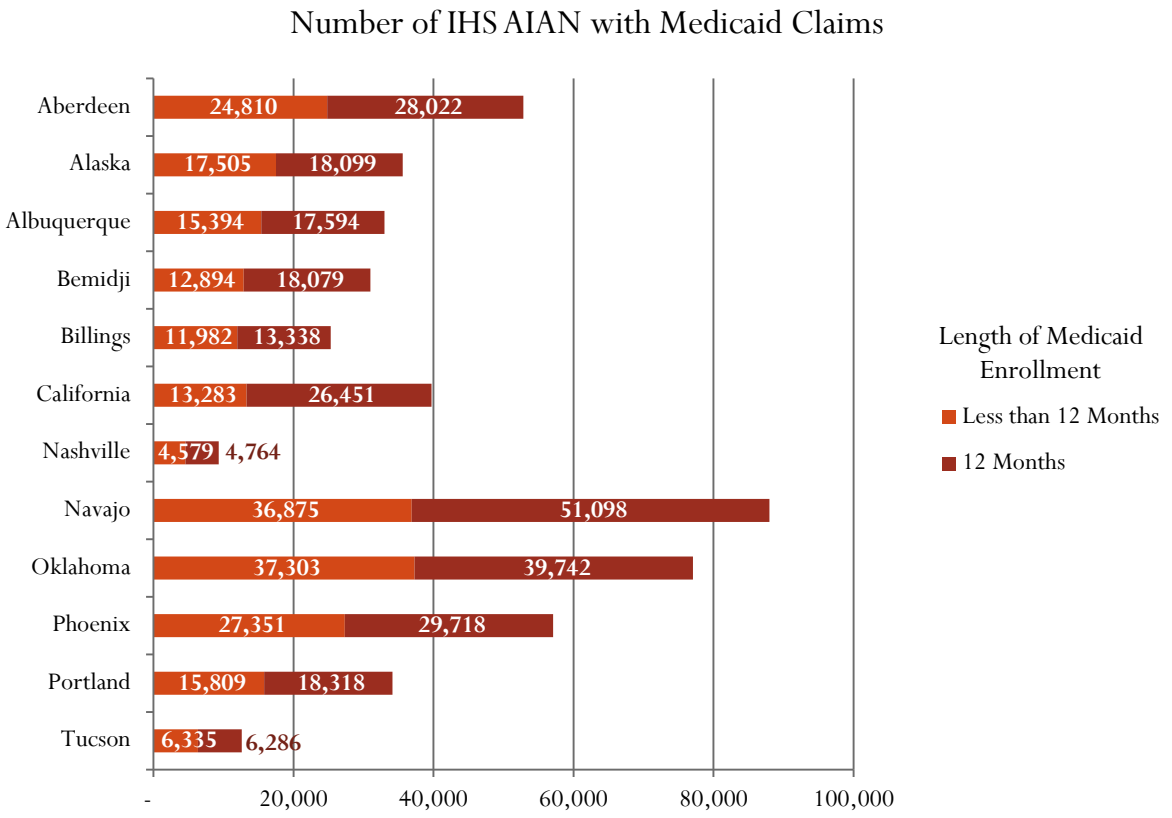
Figure 1. Unadjusted Average Total Payment per Recipient per year for all IHS AIAN divided into the Medicaid and Third Party sources of payment by IHS Area.



Length of Enrollment

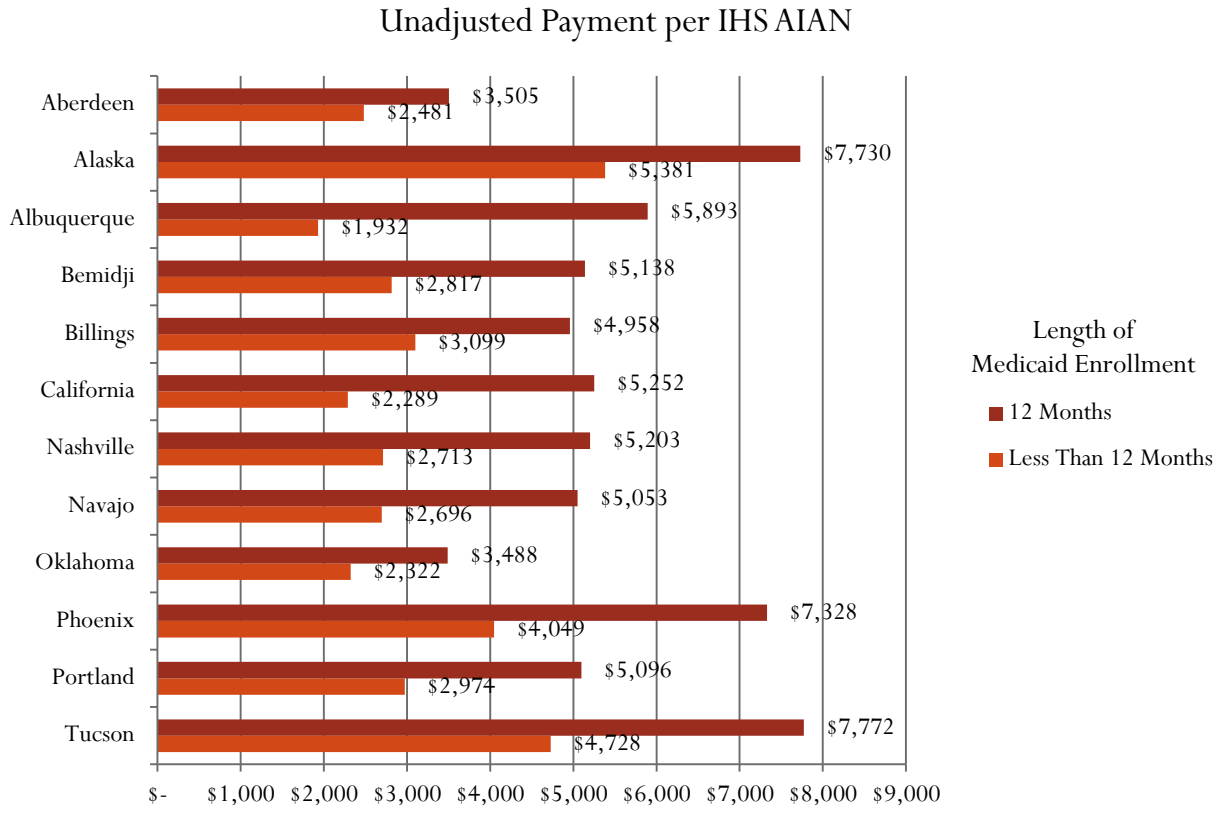
Each Area differs in the total number of Medicaid Recipients and the proportion of recipients who are enrolled all year relative to the proportion enrolled less than the full year. Navajo, Oklahoma, Phoenix and Aberdeen Areas have largest total numbers of Medicaid Recipients ranging from 50,000 to 90,000 (Figure 2) and more than half of their recipients are enrolled all 12 months of the year. Nashville and Tucson have smallest total numbers 9,000 to 13,000 but around half of those recipients are enrolled all year as well.

Figure 2. Number of IHS AIAN Medicaid Recipients in the Medicaid (MAX) database linked to the IHS Registry for 2006 divided by the length of Medicaid enrollment of the IHS AIAN by IHS Area.



When annual payments are separated for AIAN Medicaid Recipients enrolled all year and those enrolled for less than the full year, it is not surprising payments are higher for recipients enrolled all year (Figure 3). But it has been widely found that many groups of Medicaid recipients enrolled only part of the year tend to have higher service use and payments per month than those enrolled all year (see Table 5 in the Methods section). One reason often cited for the higher payments for Medicaid recipients enrolled less than a full year is that high medical need is a major reason people apply to Medicaid for coverage, and thus service use and payments tend to be high among new enrollees. On the other hand, the need for cash income such as TANF or Disability payments tends to be the reason many recipients are enrolled all year. Medical needs of the TANF population are low, while those of the disabled population are high. Another reason given for higher payments for recipients enrolled less than a full year, are high medical costs in the last year of life.

Figure 3. Unadjusted Average Total Payment per Recipient per year for IHS AIAN enrolled all 12 months and enrolled less than 12 months by IHS Area.

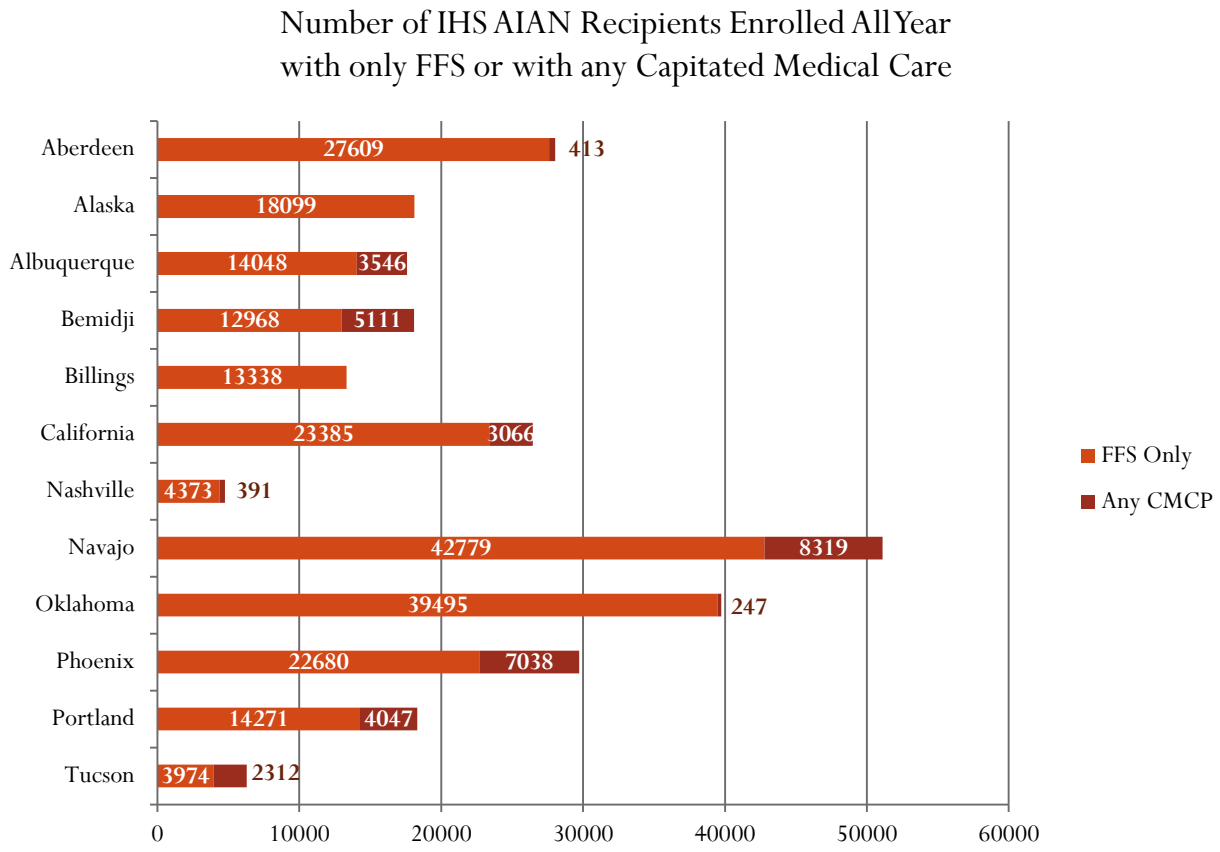


The relationship between the average total payments in Figure 1 and those in Figure 3 is standard arithmetic for the weighted average: the number of Medicaid recipients in each Area enrolled 12 months in Figure 2 is multiplied times the average payment for the recipients enrolled 12 months in Figure 3 and added to the same product for recipients enrolled less than 12 months. This weighted sum is divided by the total number of recipients for each Area in Figure 2 to obtain the weighted average payment for each Area – which is the same as the unadjusted average payments in Figure 1. This relationship is important in understanding how we will combine adjusted average payments for the Areas in the next section of the Findings.

Medical Fee-for-Service and Capitated Care

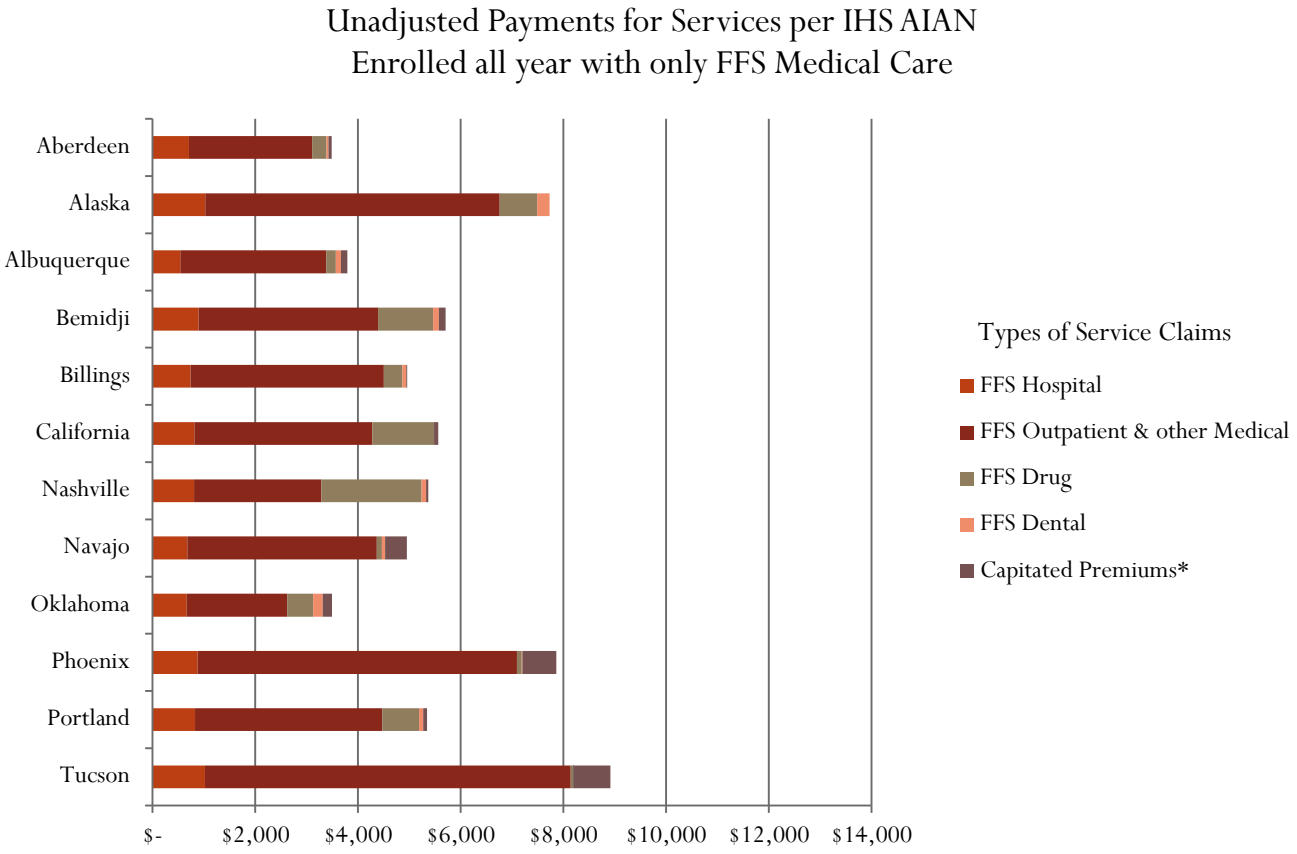
Most IHS AIAN Medicaid recipients obtain all of their medical care services in a fee-for-service (FFS) payment system rather than in a capitated managed care plan (Comprehensive Managed Care Plan, CMCP) (Figure 4). All recipients in Alaska and Billings Areas receive only FFS medical care, and nearly all in the Aberdeen and Nashville Areas. Only Tucson Area has more than a quarter of the IHS AIAN recipients enrolled all year in capitated medical care (2,312 out of 6,286 IHS AIAN recipients).

Figure 4. Number of IHS AIAN Medicaid Recipients enrolled all year in Medicaid divided between those with only Fee-for-Service medical care and those with any months in a CMCP by IHS Area.



Medicaid claims for recipients who obtain all of their medical care services in a FFS payment system are of the same types of claims for recipients who obtain any of their medical care services in a CMCP, they (Figures 5 and 6). Medicaid claims can be for specific services as needed (Hospital, Outpatient or other Medical service, Prescription Drug, Dental or Behavioral Health services) or for monthly premiums that are prepaid to managed care plans that in turn provide specified services as needed to Medicaid recipients. Because personal health care expenditures include not only medical care services (inpatient hospital, outpatient clinic and physician, and other medical services) but also dental, behavioral health or case management services, a recipient receiving all their medical care in a FFS system can have capitated monthly premium claims for Dental, Behavioral Health or Primary Care Case Management services (Figure 5). The majority of the payments are clearly for the medical care services.

Figure 5. Unadjusted Average Total Payment per Recipient per year for major types of service received by IHS AIAN enrolled 12 months in Medicaid with only Fee-for-Service medical care.



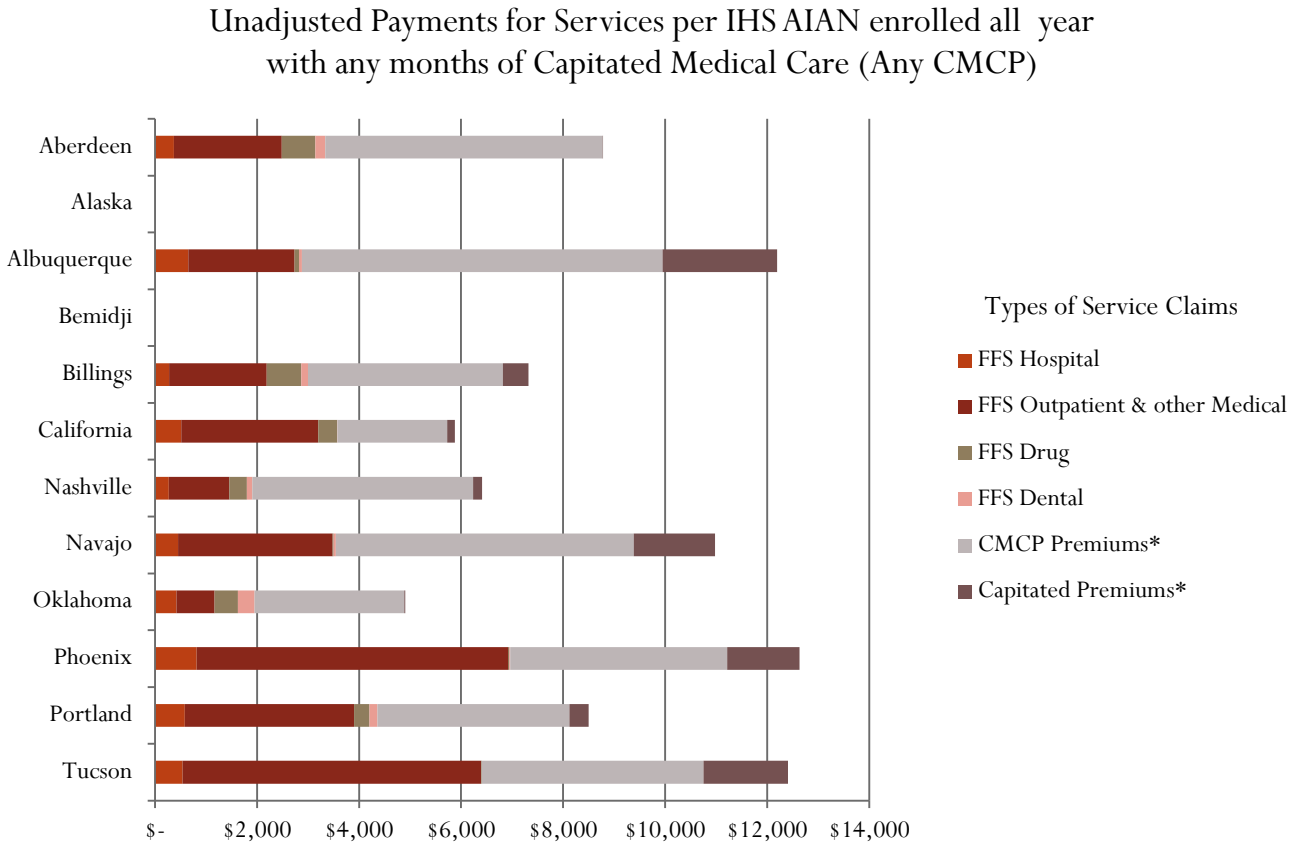
**Capitated monthly premium claims for Medicaid recipients in FFS-only medical care are for non-medical care: Dental or Behavioral Health prepaid health plans, or Primary Care Case Management. See Attachment Table C.8.*

Highest unadjusted payments for IHS AIAN enrolled in Medicaid all year with only FFS medical care are observed in Tucson and Phoenix Areas ($8,916 and $ 7,864 respectively in Figure 5). For Phoenix and Tucson Areas the FFS Hospital (inpatient), Outpatient (clinic, physician) and other Medical service (other practitioners or medical equipment) payments are higher than for total average payments for any other Area except Alaska. Lowest unadjusted payments per IHS AIAN with only FFS medical care are in Aberdeen ($3,492) and Oklahoma ($3,494) Areas. These payments are less than half those in the Tucson and Phoenix Areas.

Payments for IHS AIAN enrolled in Medicaid all year with any number of months in capitated medical care (CMCP) are higher in every Area except California Area (Figure 6 compared to Figure 5). Unadjusted annual payments per IHS AIAN are highest in Phoenix and Tucson Areas again ($12,632 and $12,411 respectively in Figure 6), but the amounts are nearly a third higher than they were for recipients with only FFS medical care in the same Areas (Figure 5).

The majority of the payments for recipients who obtain any of their medical care through CMCP plans (Figure 6) are medical care services as they were for FFS only recipients (Figure 5). While there are some FFS medical service payments, the majority of payments are for CMCP monthly premiums in most of the Areas. The exceptions are in the Tucson, Phoenix and California Areas where FFS Hospital, Outpatient and other Medical service proportions are greater than the CMCP medical care premiums.

Figure 6. Unadjusted Average Total Payment per Recipient per year for major types of service received by IHS AIAN enrolled 12 months in Medicaid with any months enrolled in capitated medical care (Comprehensive Managed care Plan, CMCP).



**Capitated monthly premium claims for Medicaid recipients with any capitated CMCP medical care are for CMCP as well as any Dental or Behavioral Health prepaid health plans. See Attachment Table C.9.*

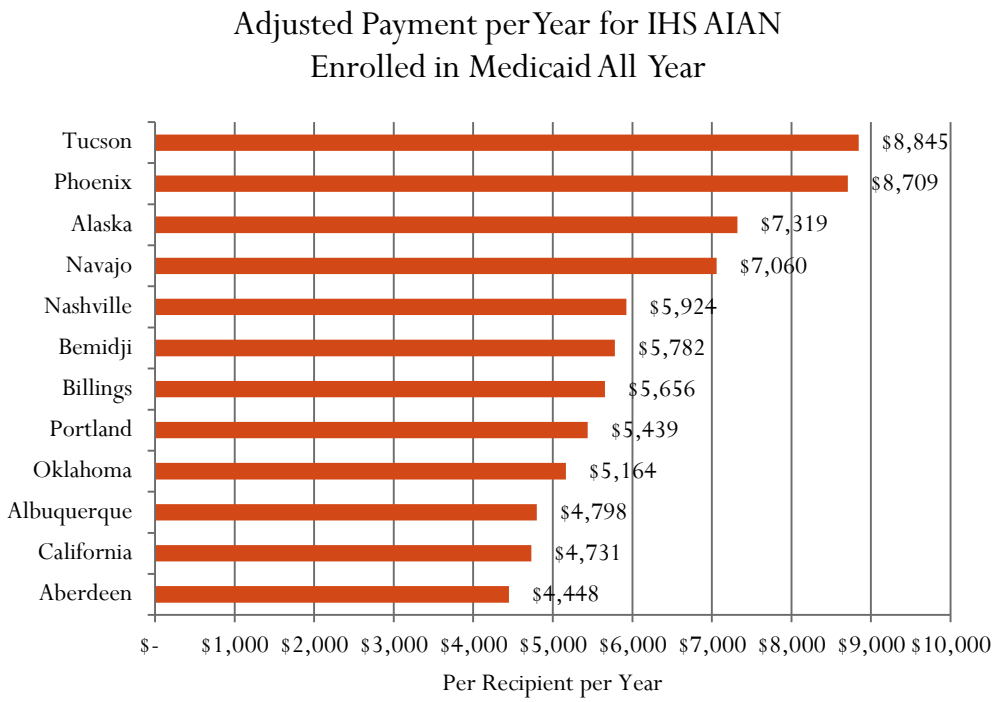
FFS medical payments can arise in any months the CMCP recipients are not enrolled in the CMCP. Furthermore, FFS hospital payments can also arise for CMCP recipients because not all Medicaid CMCP include hospital care. The extent to which FFS payments for CMCP recipients occur because the enrollees seek care outside the CMCP providers requires further analyses.

Adjusted Medicaid Payments for IHS AIAN Vary across IHS Areas

With so many differences in Medicaid payments across the IHS Areas it was expected that payments for IHS AIAN would not vary as much with the statistical adjustments, especially when they are done separately for the major payment groups. The adjustments included age, sex, disability, Medicare coverage, state Medicaid program ('County') and morbidity. Adjustments were performed in separate models for Medicaid recipients enrolled all year and enrolled less than a year, FFS only and any CMCP medical care, as well for Medicaid recipients under age 65 and aged 65 and over. Yet even after all the modeling, the variation in the payments for IHS AIAN was not reduced. The range in adjusted payments per person continued to be about two-fold between lowest and highest values (see findings in Attachments F to K).

The findings presented here are the adjusted average payments per year for IHS AIAN enrolled all year (Attachments F, G and J combined). Adjusted average payments per month for all IHS AIAN regardless of length of enrollment adjusted for all the other variables are provided in Attachments H, I and K. The disability adjustment is found to have an unduly large effect on the average payments without simultaneous adjustment for morbidity (see Attachment Figures F.2, G.2, H.2, I.2, J.2 and K.2) and is not recommended for recipients enrolled less than a year because morbidity adjustments are more reliable the longer the period of service claims available to evaluate the diseases and treatments of individuals. Morbidity adjustments are not even recommended by the risk adjustment software company for recipients enrolled less than a year (*www.acg.jhsph.org)*.

Figure 7. Weighted average of the Adjusted Total Payment per Recipient per Year for the IHS AIAN Recipients enrolled all year in Medicaid in each IHS Area. Adjustments are for age and sex, Disability, Dual eligibility with Medicare, Morbidity & County).



The adjusted average payments for IHS AIAN enrolled in Medicaid all 12 months ranged nearly two-fold across IHS Areas. The highest adjusted payment for the Tucson Area ($8,843 per recipient per year) was 198% higher than the lowest payment for Medicaid claims was found for Aberdeen Area ($4,448). Tucson, Phoenix and Navajo Areas rank high because of the high payments found in Arizona (Figure 7). When recipients in Arizona state are removed from Phoenix and Navajo Areas the adjusted average payments in the areas are less than Alaska Area.

The combined adjusted average payment value for each Area is a weighted average of the adjusted average payments for IHS AIAN Medicaid recipients enrolled all year and enrolled less than a year, with FFS only or any CMCP medical care, as well for Medicaid recipients under age 65 and aged 65 and over (Table 10). This weighted average is determined with the same arithmetic that could have been used to obtain Figure 1 from Figures 2 and 3: The numbers of IHS AIAN Medicaid recipients in each group are multiplied times the adjusted average payments for each group and then added before dividing by the total number of recipients in all the groups. This is a standard technique, and the combined value is termed the 'expected value' for the population

Table 10. Numbers of IHS AIAN Medicaid Recipients enrolled all year in Medicaid and their adjusted Average Total Payment per Recipient per Year across 12 IHS Areas. Adjustments are separate for IHS AIAN under and over age 65 with medical care either Fee-for-Service only (FFS) or any Comprehensive Managed Care Plan (CMCP) (adjustments are for age and sex, and for Disability, Dual eligibility with Medicare, Morbidity & County).

	Recipients Enrolled All 12 months in Medicaid					
	Under age 65				Age 65 & over	
	FFS Only		Any CMCP		FFS Only*	
IHS Area	Number	Payment	Number	Payment	Number	Payment
Aberdeen	26376	$ 4,418	413	$ 5,503	443	$ 5,246
Alaska	16649	$ 6,965	0	$ -	1201	$ 12,237
Albuquerque	13031	$ 4,601	3546	$ 5,372	41**	$ 17,781
Bemidji	12200	$ 5,563	5111	$ 6,166	482	$ 7,268
Billings	12826	$ 5,653	0	$ -	365	$ 5,755
California	21430	$ 4,597	3066	$ 3,868	1239	$ 9,183
Nashville	4039	$ 5,907	391	$ 5,012	238	$ 7,714
Navajo	38446	$ 7,541	8319	$ 5,069	916	$ 4,967
Oklahoma	37086	$ 4,928	247	$ 4,539	2227	$ 9,158
Phoenix	20800	$ 8,860	7038	$ 8,287	894	$ 8,524
Portland	13761	$ 5,265	4047	$ 5,717	374	$ 8,839
Tucson	3724	$ 8,708	2312	$ 9,058	134	$ 8,977

**The numbers of IHS AIAN age 65 and over enrolled 12 months with any capitated medical care (CMCP) are too small in most areas for the models to converge; ** In Albuquerque Area 93% of IHS AIAN age 65 and over enrolled 12 months had some CMCP so this number is very small and the average payment not representative. (In Navajo Area 52% of IHS AIAN age 65 and over had some CMCP, in Tucson Area 20%, Bemidji 15%, Portland 12% and Phoenix 9%, the rest of the areas 3% or less).*

Medicaid Fractions of the Health Care Costs of IHS Active Users Vary across IHS Areas

IHS Calculated Health Care Costs for IHS Active Users

The IHS determined that the actuarially calculated benchmark (standardized) cost of a Federal Employee Health Plan of personal medical services for the AIAN users at the IHS and tribal provider sites in the IHS Indian health care service delivery system was an estimated $4,106 in 2006 (Table 11, 2007 calculations from the *Federal Employees Health Plan Disparities Index*). Within each Area, for each IHS and tribal health care site they adjusted how this benchmark amount would need to be increased or decreased (negative numbers are in parentheses in Table 11) to purchase the care at that site using standard actuarial techniques. They then aggregated results at the Area level.

Table 11. IHS determined differences in per capita costs of health care costs for IHS Users across IHS Areas and the expected adjustments including Alternate Resource amounts. Amounts in parentheses (x) are negative reductions in expected costs of care to IHS and tribal providers for costs of care of their IHS Active User population.

IHS Area	Benchmark Cost per IHS Active User 2006	Adjustments Economic Adjustment	Adjustments Health Status & Poverty Adjustment	Adj Bnchmk Cost per IHS Active User	Adjustments Alternate Resource Adj aggregated for Sites by Area		Adj Bnchmk Cost per IHS Active User
Aberdeen	$ 4,106	$ (189)	$ 774	$ 4,691	$ (999)	-21%	$ 3,693
Alaska	$ 4,106	$ 1,856	$ (131)	$ 5,831	$ (1,396)	-24%	$ 4,435
Albuquerque	$ 4,106	$ (202)	$ 9	$ 3,913	$ (822)	-21%	$ 3,091
Bemidji	$ 4,106	$ (101)	$ 333	$ 4,338	$ (815)	-19%	$ 3,523
Billings	$ 4,106	$ (128)	$ 502	$ 4,480	$ (910)	-20%	$ 3,569
California	$ 4,106	$ 488	$ (399)	$ 4,195	$ (728)	-17%	$ 3,467
Nashville	$ 4,106	$ 266	$ (263)	$ 4,109	$ (678)	-17%	$ 3,432
Navajo	$ 4,106	$ (597)	$ 97	$ 3,606	$ (902)	-25%	$ 2,705
Oklahoma	$ 4,106	$ (414)	$ (170)	$ 3,522	$ (687)	-20%	$ 2,834
Phoenix	$ 4,106	$ 95	$ (10)	$ 4,191	$ (806)	-19%	$ 3,385
Portland	$ 4,106	$ 572	$ (259)	$ 4,419	$ (770)	-17%	$ 3,649
Tucson	$ 4,106	$ (278)	$ 102	$ 3,930	$ (867)	-22%	$ 3,063

The $4,106 benchmark amount for the FEHP medical, dental, behavioral health and vision care was adjusted for the following (see Table 11):

- Actuarial Adjustments for age and sex distribution of the AIAN user population of IHS and Tribal sites
- Economic Adjustments for differences in health care costs (the COLI Index, see Methods Medical Cost Index); Size (economies of scale of larger provider sites) and whether all hospital and specialty services are purchased because of lack of access to an IHS or tribal hospital
- Health and Poverty Adjustments for differences in health status (relative rates for the Areas for injuries and poisonings, alcoholism, diabetes, heart disease, cancer); Area differences in birth rates; Area differences in Percent of population over age 55; and Area and site differences in Poverty Rates among AIAN

After adjustments, the expected Benchmark cost per IHS Active User across the IHS Areas varied considerably from a low of $3,522 in Oklahoma Area to a high of $5,831 in Alaska Area.

The amount deducted for third party 'Alternate Resources' from the adjusted benchmark cost in each IHS Area for FY2007 is shown in Table 11. The calculations included the estimate that Medicaid/CHIP, Medicare, Private Insurance and other third party payers pay about 25% of the adjusted health care costs for IHS Active Users across all IHS and tribal provider sites in the IHS Areas based on 1987 survey data. The Alternate Resources include estimated collections to the IHS and tribal sites from the third party payers and payments made to other providers

for services needed by IHS and tribal site users. At sites without access to an IHS or tribal hospital the amount deducted from the benchmark cost for Alternate Resources was higher because no hospital costs were billable by IHS or tribal provider sites, and instead had to be purchased.

Medicaid Fraction of IHS Active User Health Care Costs

We can use the actual Medicaid (that is Total Medicaid and Third Party) payments for IHS AIAN enrollees in 2006 that are documented in the Medicaid-IHS linked data in this report to update the Medicaid/CHIP portion of Alternate Resources paid in each Area per IHS Active User. Because IHS adjusted the expected benchmark cost for each Area, the proper payment information to use is the Unadjusted Average Payment per IHS AIAN Recipient multiplied by the rate at which IHS Active Users in the IHS Registry were found to be Medicaid enrollees, and then the rate at which the IHS AIAN Medicaid enrollees were found to be Recipients with Medicaid paid claims (Table 12).

When we insert the Average Total Payments for the appropriate IHS AIAN Medicaid recipients in the IHS analytical framework (Attachment Table C.4 data inserted in column A of Table 12), we find that the Medicaid Alternate Resources are higher than expected from the 1987 survey data, (Table 12 compared to Table 11).

Table 12. Calculation of the expected Medicaid Average Total Payment per IHS Active User across IHS Areas as a percent of the FDI Adjusted Benchmark (Column F, blue column from Table 13). Total payment includes the amounts paid by Medicaid/CHIP and Third Parties for Medicaid enrollees with paid claims (recipients).

IHS Area	Unadjusted Mean Total Medicaid Payment per IHS AIAN Recipient*	IHS Active Users who are Medicaid Enrollees (%)	IHS AIAN Medicaid Enrollees who are Recipients (%)	IHS Active User Recipients (% of all IHS Active Users)	Unadjusted Mean Total Medicaid Payment per IHS Active User	FDI Adj Bnchmk per IHS Active User	Medicaid Payments (% of FDI Adj Benchmark)
	A	B	C	D = B x C	E = A x D	F	G=E/F
Aberdeen	$ 3,024	44%	96%	42%	$ 1,277	$ 4,691	27%
Alaska	$ 6,575	37%	92%	34%	$ 2,238	$ 5,831	38%
Albuquerque	$ 3,162	39%	93%	36%	$ 1,147	$ 3,913	29%
Bemidji	$ 4,172	35%	92%	32%	$ 1,343	$ 4,338	31%
Billings	$ 4,078	39%	96%	37%	$ 1,527	$ 4,480	34%
California	$ 4,261	29%	99%	29%	$ 1,223	$ 4,195	29%
Nashville	$ 3,983	22%	88%	19%	$ 771	$ 4,109	19%
Navajo	$ 4,065	49%	84%	41%	$ 1,673	$ 3,606	46%
Oklahoma	$ 2,924	26%	95%	25%	$ 722	$ 3,522	21%
Phoenix	$ 5,757	45%	79%	36%	$ 2,047	$ 4,191	49%
Portland	$ 4,113	34%	94%	32%	$ 1,315	$ 4,419	30%
Tucson	$ 6,244	51%	80%	41%	$ 2,548	$ 3,930	65%

**From Attachment C: Recipients Enrolled Any Number of Months in Medicaid (Attachment Table C.4)*

The percent of all IHS Active Users who are Medicaid Recipients (column D) is the product of multiplying two key rates of Medicaid participation determined from linked IHS and Medicaid data:

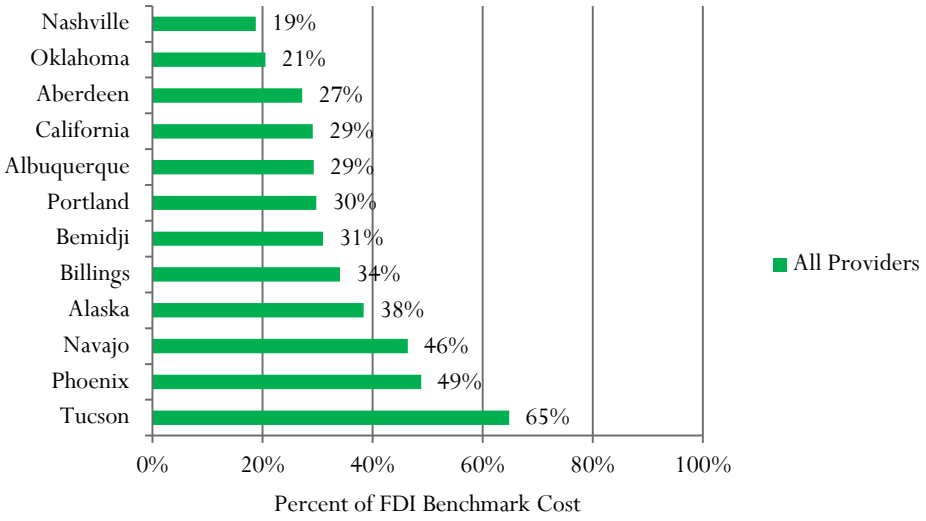
- Percent of IHS Active Users who are Medicaid enrollees (column B). The Medicaid enrollment rate for IHS Active Users was determined during the linkage of IHS Registry data to this Medicaid enrollee data (see Methods and Table 2 in the 2011 report *Integrating Medicaid and Indian Health Service Data*).

- Percent of IHS Active User Medicaid Enrollees who are Recipients of Medicaid Paid Services (column C). The Medicaid participation rate of enrollees was determined by dividing the number of IHS AIAN Medicaid enrollees that had paid claims of more than zero dollars in column A, by all the IHS AIAN Medicaid enrollees (Attachment Table C.3).

The unadjusted average Total Payment per IHS Active User (column E) is determined by multiplying the percent of all IHS Active Users who are Medicaid Recipients (column D)times the unadjusted average Total Payment per HIS AIAN Recipient (column A).

When the unadjusted average Total Payment per IHS Active User (column E) is expressed as a percent of the FDI Adjusted Benchmark Costs per Active User (column F), the Areas with lowest fractions of health care costs paid by Medicaid for their IHS Active User population (columns G) are Nashville (19%) and Oklahoma (21%) with a Medicaid Fraction of about one-fifth (Figure 8). Aberdeen, California, Albuquerque, Portland and Bemidji Areas have mid-range fractions of between a little more than one quarter and a little less than one-third (27% to 31%). Alaska and Billings are in the middle of the Area rankings with a little more than one-third of the costs paid by Medicaid (34% to 38%). And Navajo and Phoenix have Medicaid fractions of nearly one half (46% and 49% respectively). Tucson has the highest Medicaid paid fraction of nearly two-thirds (65%).

Figure 8. Medicaid Alternate Resources paid to all providers as percent of IHS calculated FDI benchmark health care costs for IHS Active Users in each Area.



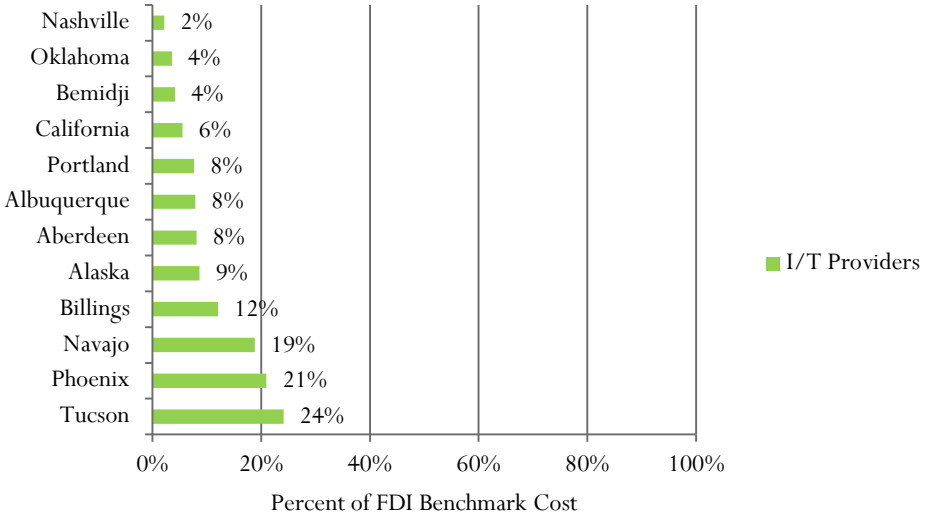
Medicaid Fraction Paid to IHS and Tribal Providers for IHS Active Users

Using the Medicaid IHS Program claims payment data for IHS AIAN Medicaid recipients we can calculate the expected Average Medicaid IHS Program Payment per IHS Active User to IHS and Tribal (I/T) providers. We substitute the unadjusted Average Medicaid IHS Program Payment per IHS AIAN Recipient for the Total Payment in the calculations in Table 12 to obtain the percents in Figure 9.

When the outcomes are expressed as a percent of the FDI Adjusted Benchmark Cost, the Areas with I/T providers with the lowest reported Alternate Resources for IHS Active User Medicaid enrollees are Nashville (2%), Bemidji (4%), Oklahoma (4%) and California (6%), (Figure 9). For Portland, Albuquerque, and Aberdeen Areas only 8% of all Medicaid payments are to IHS and Tribal providers for health care costs of their Active Users, and Alaska Area is

only 9%. Medicaid resources Billings (12%), Navajo (19%), Phoenix (21%), and Tucson Areas (24%) have the highest relative Medicaid resources.

Figure 9. Medicaid Alternate Resources paid to I/T providers as percent of IHS calculated FDI benchmark health care costs for IHS Active Users in each Area.



IHS Active Users who lack Medicaid IHS Claims have Lower Payments

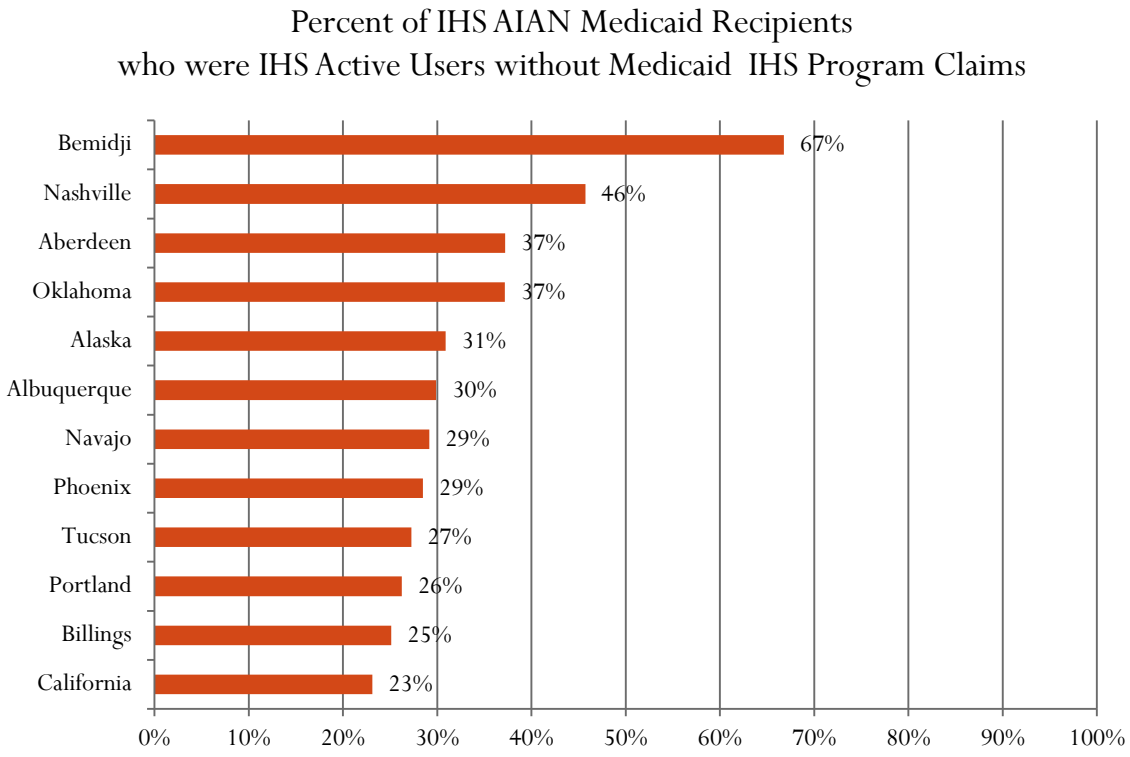
In all Areas there were IHS Active Users identified by the IHS registry who were found not to have any Medicaid claims from IHS system providers (IHS or Tribal) among their Medicaid claims. Bemidji has the highest proportion of such IHS AIAN at 67% (Figure 10). California had the lowest fraction 23%.

One reason this group arises may be because a state Medicaid program does not identify IHS Program claims in their state Medicaid data. In the Bemidji Area only the state of Minnesota had IHS Program claims for 2006 (Attachment D). Michigan and Wisconsin did not identify any IHS Program claims in their data. Nashville Area is has several states that do not report IHS Program claims.

Another reason that some IHS Active Users who are Medicaid recipients may not have IHS Program claims is because they did not obtain services from their IHS system provider in 2006. '2006 AIAN Active Users' as defined by IHS averages the AIAN population who used an IHS system provider at least once in 2004 to 2006. It is possible that they use the IHS system provider services in 2004 or 2005.

A third reason these Medicaid recipients who are IHS Active Users had no IHS claims is that they see an IHS system provider and instead obtained health care services outside the IHS system was because they only needed specialist inpatient or outpatient care in 2006.

Figure 10. Percent of IHS AIAN Medicaid Recipients enrolled any number of months in Medicaid who were IHS Active Users according to the IHS Registry but did not have any IHS Program Claims in the Medicaid data.

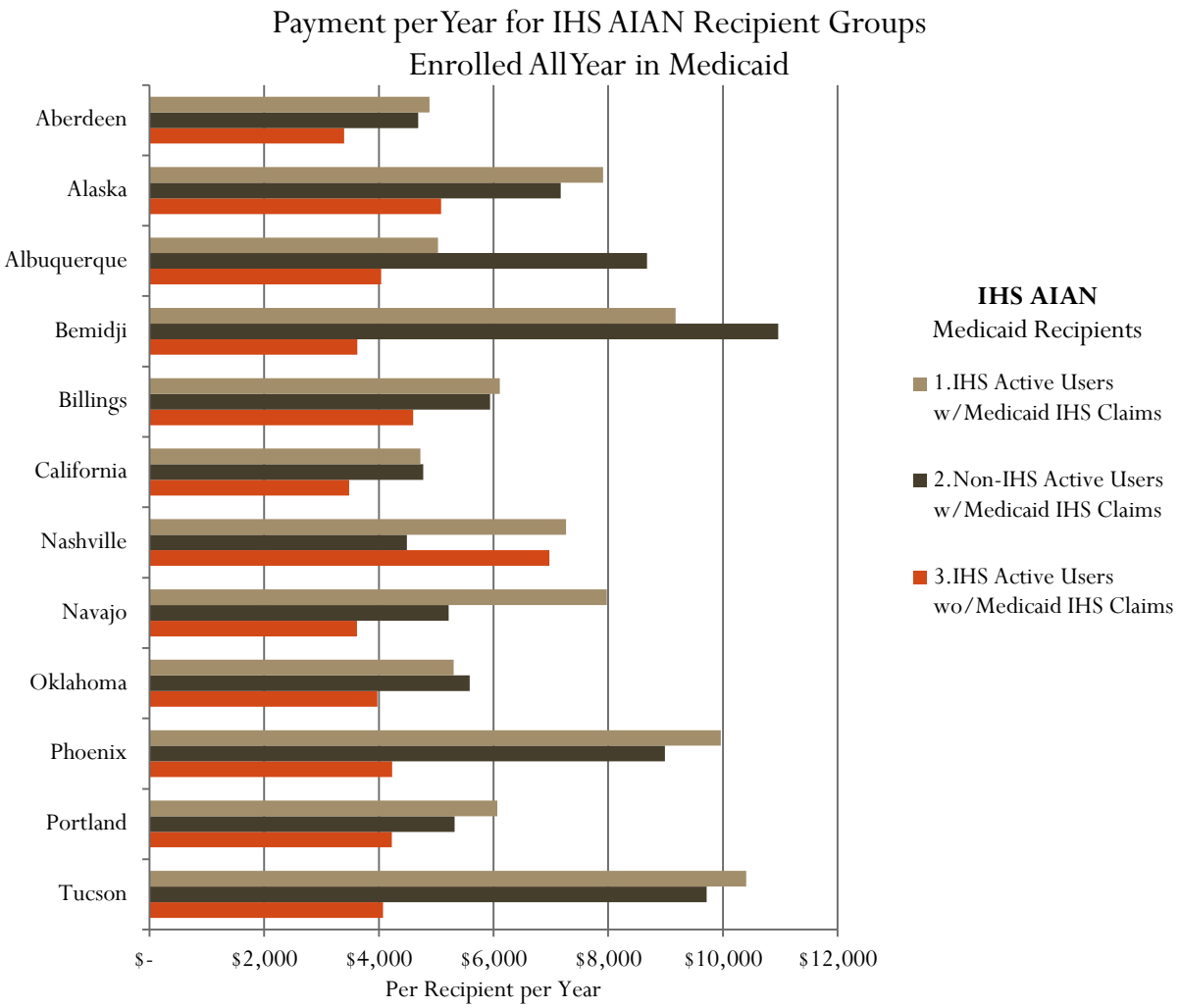


None of these reasons explain why the payments are lower for Medicaid recipients who are IHS Active Users but have no Medicaid IHS Program claims when compared to IHS Active Users with any Medicaid IHS Program claims in every IHS Area (Figure 11). If the reason they did not see an IHS system provider in 2006 was because they are not as sick as other IHS Active Users and did not need the IHS system provider, but got other services they needed from

other Medicaid providers, then the morbidity adjustment that was performed should have adjusted for any reduced morbidity of these IHS Active Users relative to other IHS Active Users. The adjusted average payments should have been similar.

If the reason they did not see an IHS system provider in 2006 was because they were sicker and needed only specialist inpatient or outpatient care, such services would predict higher and not lower than average payments, although again the morbidity adjustment that was performed should have adjusted for higher morbidity relative to other IHS Active Users. Again the adjusted average payments should have been similar.

Figure 11. Weighted average of the Adjusted Total Payment per Recipient per Year for the three groups of IHS AIAN Recipients enrolled all year in Medicaid in each IHS Area. Adjustments are for age and sex, Disability, Dual eligibility with Medicare, Morbidity & County).



Another reason there may be no IHS Program claims for these Medicaid recipients who are IHS Active Users may be because they were enrolled in capitated managed care plans for medical and other services all year. It is possible the payments to IHS and tribal providers were then made by the plans. This appears to explain the effect in the Nashville Area for example (Table 13). None of the recipients with any CMCP have IHS Program claims, and payments ($4,939) are lower than for IHS Active Users in FFS only care with IHS claims ($6,049). The effect is mainly observed for IHS Active Users with FFS only care for other Areas, though it is observed for IHS Active Users with CMCP as well for all but Aberdeen Area (Table 13).

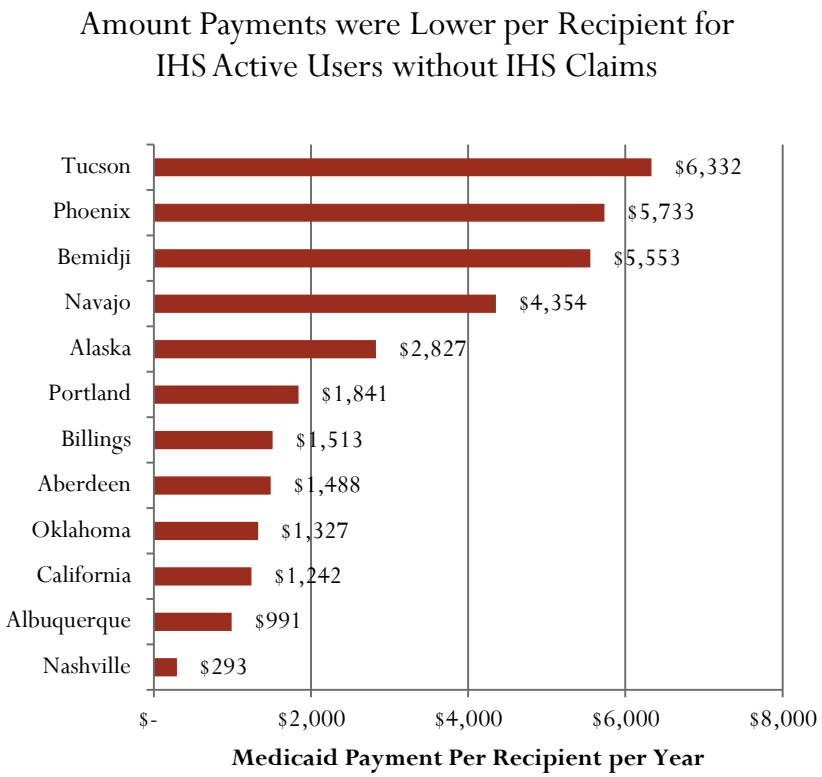
Table 13. Numbers of Recipients enrolled all year in Medicaid and their adjusted Average Total Payment per Recipient per Year for the three groups of IHS AIAN across 12 IHS Areas.

		Recipients Enrolled All 12 months in Medicaid						
		Under age 65				Age 65 & over		Weighted Adjusted Mean
	IHS AIAN	FFS Only		Any CMCP		FFS Only		
	Medicaid Recipients	Number	Payment	Number	Payment	Number	Payment	Payment
Aberdeen	1.IHS Active User with IHS claims	16018	$ 4,878	86	$ 4,956	244	$ 5,197	$ 4,883
	2.Non-IHS Active User with IHS claims	3104	$ 4,680	32	$ 4,897	33	$ 5,118	$ 4,687
	3.IHS Active User without IHS claims	7254	$ 3,262	287	$ 5,619	166	$ 5,373	$ 3,395
Alaska	1.IHS Active User with IHS claims	9505	$ 7,869	0	$ -	379	$ 8,972	$ 7,911
	2.Non-IHS Active User with IHS claims	2966	$ 7,148	0	$ -	157	$ 7,656	$ 7,173
	3.IHS Active User without IHS claims	4178	$ 4,781	0	$ -	665	$ 6,985	$ 5,084
Albuquerqu	1.IHS Active User with IHS claims	9546	$ 5,007	1395	$ 5,228	23	$ 4,282	$ 5,033
	2.Non-IHS Active User with IHS claims	347	$ 4,779	1569	$ 9,544	2	$ 3,086	$ 8,675
	3.IHS Active User without IHS claims	3138	$ 4,220	559	$ 2,894	16	$ 9,245	$ 4,042
Bemidji	1.IHS Active User with IHS claims	2771	$ 8,362	501	$ 10,244	130	$ 22,391	$ 9,175
	2.Non-IHS Active User with IHS claims	1872	$ 10,287	863	$ 11,822	87	$ 17,062	$ 10,965
	3.IHS Active User without IHS claims	7557	$ 3,306	3658	$ 4,124	265	$ 5,733	$ 3,622
Billings	1.IHS Active User with IHS claims	9095	$ 6,070	0	$ -	102	$ 9,894	$ 6,112
	2.Non-IHS Active User with IHS claims	1174	$ 5,683	0	$ -	33	$ 15,077	$ 5,940
	3.IHS Active User without IHS claims	2557	$ 4,186	0	$ -	230	$ 9,191	$ 4,599
California	1.IHS Active User with IHS claims	4559	$ 4,703	438	$ 3,866	268	$ 6,478	$ 4,724
	2.Non-IHS Active User with IHS claims	14586	$ 4,752	776	$ 4,260	754	$ 5,716	$ 4,774
	3.IHS Active User without IHS claims	2285	$ 3,298	1793	$ 3,598	217	$ 4,463	$ 3,482
Nashville	1.IHS Active User with IHS claims	1275	$ 6,049	0	$ -	116	$ 20,637	$ 7,266
	2.Non-IHS Active User with IHS claims	1138	$ 4,572	0	$ -	46	$ 2,496	$ 4,492
	3.IHS Active User without IHS claims	1626	$ 6,717	387	$ 4,939	76	$ 22,804	$ 6,973
Navajo	1.IHS Active User with IHS claims	28416	$ 8,440	4479	$ 5,426	692	$ 5,342	$ 7,974
	2.Non-IHS Active User with IHS claims	1245	$ 1,903	1819	$ 7,496	4	$ 1,486	$ 5,218
	3.IHS Active User without IHS claims	8785	$ 3,650	1833	$ 2,760	220	$ 9,624	$ 3,621
Oklahoma	1.IHS Active User with IHS claims	16292	$ 5,338	2	$ 13,529	1028	$ 4,734	$ 5,303
	2.Non-IHS Active User with IHS claims	8580	$ 5,532	2	$ 2,193	617	$ 6,347	$ 5,586
	3.IHS Active User without IHS claims	12214	$ 3,915	242	$ 4,420	582	$ 5,076	$ 3,977
Phoenix	1.IHS Active User with IHS claims	14292	$ 9,860	3455	$ 10,610	333	$ 7,769	$ 9,965
	2.Non-IHS Active User with IHS claims	3384	$ 9,298	624	$ 8,878	449	$ 6,842	$ 8,992
	3.IHS Active User without IHS claims	3124	$ 3,572	2836	$ 4,826	112	$ 7,608	$ 4,232
Portland	1.IHS Active User with IHS claims	6187	$ 5,987	1100	$ 6,334	103	$ 7,868	$ 6,065
	2.Non-IHS Active User with IHS claims	5113	$ 5,024	1467	$ 5,988	117	$ 9,846	$ 5,319
	3.IHS Active User without IHS claims	2461	$ 3,784	1447	$ 4,653	154	$ 7,228	$ 4,224
Tucson	1.IHS Active User with IHS claims	2290	$ 9,573	762	$ 12,863	75	$ 10,930	$ 10,408
	2.Non-IHS Active User with IHS claims	943	$ 9,783	589	$ 9,907	44	$ 5,813	$ 9,718
	3.IHS Active User without IHS claims	491	$ 2,572	909	$ 4,890	15	$ 3,910	$ 4,075

The likely explanation for the lack of IHS Program claims for Medicaid recipients who are IHS Active Users with FFS only medical care is that IHS and Tribal providers did not submit claims to Medicaid for services they provided, or they did not succeed in obtaining payment for claims they submitted. Either way the IHS system providers lost Medicaid revenues for services they provided to Medicaid recipients.

Adjusted Medicaid payments were found to be systematically lower for these IHS Active Users by substantial amounts in all Areas. The maximal likely amounts of Medicaid revenues lost in each Area ranged from a high of more than $6,000 in Tucson Area to a low of less than $300 in the Nashville Area where most its states do not identify IHS claims (Figure 12). The persistence of this affect across all IHS Areas and Medicaid recipient types implied that IHS system providers – both IHS and Tribal-- were potentially entitled to increased Medicaid revenues with improved Medicaid collections practices.

Figure 12. Difference in Adjusted Total Payment per Recipient per Year for the two groups of IHS Active User Recipients with and without IHS claims (groups 1 and 3 in Figure 11) enrolled all year in Medicaid in each IHS Area. Adjustments are for age and sex, Disability, Dual eligibility with Medicare, Morbidity & County)



Conclusions and Recommendations

CMS needs to Reduce Undo Variation in Medicaid Payments across IHS Areas

Payments for Medicaid recipients who rely on IHS system providers for their health care varied two-fold across the 12 IHS Areas. The extent of variation among IHS Areas in Medicaid payments is evidence of a high level of discretion in how state programs fulfill the federal trust responsibility to provide an appropriate level of health care services IHS system users. This variation will no doubt be increased in the near future as several states with large AIAN populations in IHS service delivery Areas opt to not participate in the Medicaid Expansion opportunity established under the Affordable Care Act. CMS, with the full participation of Indian Tribes, should explore policy options to minimize this lack of equity in access to Medicaid services and revenues.

IHS needs to Take into Account the Variation in Medicaid Payments across IHS Areas in IHS Funding Allocations

The fraction of health care costs needed by the IHS Active User population that is paid by Medicaid (and Medicaid-CHIP) is 25% or more in 9 of 12 IHS Areas, but varied from 19% to 65% depending on the IHS Area. Areas with the lowest fraction of about one-fifth are Nashville (19%) and Oklahoma (21%). Aberdeen, California, Albuquerque, Portland and Bemidji Areas have mid-range fractions of between a little more than one quarter and a little less than one-third (27% to 31%). Alaska and Billings are in the middle of the Area rankings with a little more than one-third of the costs paid by Medicaid (34% to 38%). And Navajo and Phoenix have Medicaid fractions of nearly one half (46% and 49% respectively). Tucson has the highest Medicaid paid fraction of nearly two-thirds (65%).

IHS and Tribal Health Care Providers Need to Improve Collections of Medicaid Revenues in all IHS Areas

IHS Active Users with Medicaid claims but no IHS Program Medicaid claims had substantially lower payments over all the recipient types analyzed. The per capita payments for this subgroup of IHS AIAN were substantially lower for all types of Medicaid recipients analyzed than those of: 1) other IHS AIAN with IHS Program Medicaid claims, 2) Self-declared AIAN who did not use the IHS system, and 3) whites living in the same counties. This was found as an overall conclusion for all IHS Areas when the compared to the IHS AIAN with IHS Program Medicaid claims. This was found for all but one IHS Area compared to Self-declared AIAN (Nashville) and for one IHS Area compared to whites (Tucson). The payments were risk-adjusted and therefore it is not likely that they are lower because these are healthier IHS AIAN than the other groups of IHS AIAN. This finding supports the conclusion that IHS system providers may not be doing all the billing and collections of Medicaid for care they have provided to their IHS user population.

While it was not the purpose of this report to investigate how much state Medicaid Programs are losing in federal Medicaid Revenues by not reporting IHS system claims, an additional conclusion of this report is that motivating states to report the enrollment and claims separately for AIAN who are IHS system users will be critical with the implementation of health care reform regulations starting in 2014.

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