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Informing public policy toward binational health insurance: Empirical evidence from California

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Abstract

Objective. To estimate reimbursement rate differences between Mexico and US based physicians reimbursed by a binational health insurance (BHI) plan and US payers, respectively; and show the relationship between plan benefit designs and health care utilization in Mexico. **Materials and methods**. Data include 33 841 and 53 909 HMO enrollees in California from *Sistemas Médicos Nacionales* (SIMNSA) and *Salud con Health Net*, respectively. We use descriptive statistical methods. **Results**. SIMNSA's physician reimbursement rates averaged 50.7% (95% CI: 34.5%-67.0%) of Medi-Cal's, 28.3% (95% CI: 19.6%-37.0%) of Medicare's, and 22% of US private plans'. Each year, 99.4% of SIMNSA enrollees but only 0.1% of *Salud con Health Net* enrollees obtained care in Mexico. **Conclusion**. SIMNSA only covers emergency and urgent care in the US, while *Salud con Health Net* covers comprehensive care with higher patient cost sharing than in Mexico. To realize potential savings, plans need strong incentives to increase utilization in Mexico.

Key words: binational health insurance; US-Mexico border; emigrants and immigrants; health care costs; cross-border health care utilization; medically uninsured

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Resumen

Objetivo. Estimar diferencias en tasas de reembolso y utilización de servicios médicos cubiertos por seguros binacionales de salud (SBS) y aquellos de planes públicos y privados de EUA. **Material y métodos**. Con métodos estadísticos descriptivos se analizan datos de 33 841 afiliados a Sistemas Médicos Nacionales (SIMNSA) y 53 909 de Salud con Health Net en California. **Resultados**. Las tasas de reembolso de SIMNSA son en promedio 50.7% (95% IC: 34.5%-67.0%) de aquellas de Medi-Cal, 28.3% (95% IC: 19.6%-37.0%) de Medicare, y 22% de los planes privados de EUA. Cada año, 99.4% de afiliados a SIMNSA, pero sólo 0.1% de Salud con Health Net obtienen atención en México. **Conclusión**. SIMNSA sólo cubre gastos de emergencia y atención urgente en EUA, mientras que Salud con Health Net cubre servicios de atención integrales. Los planes de SBS pueden lograr ahorros importantes con más incentivos para que la atención ocurra en México.

Palabras clave: seguros binacionales de salud; frontera México-EUA; emigrantes e inmigrantes; costos de atención médica transfronteriza; utilización de servicios sanitarios; personas sin seguro médico

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Binational health insurance (BHI) between the United States and Mexico is a potential way to provide health insurance to the uninsured residing in the United States near the border, particularly uninsured immigrants from Mexico. Many individuals are uninsured, because health insurance premiums are unaffordable.[1] BHI premiums may have the potential to be more affordable than conventional insurance premiums, because Mexico-based health care providers likely have lower reimbursement rates than United States-based providers. The premium savings from BHI plans will largely depend on the magnitudes of the provider reimbursement rate differences, as well as the share of enrollees' health care utilization that takes place Mexico. To our knowledge, no publicly available study has estimated provider reimbursement rate differences between the United States and Mexico within a BHI plan, nor has examined how a BHI plan's benefit design is related to enrollees' level of health care utilization in Mexico. This study estimates physician-reimbursement rate differences between Mexico and United States-based physicians, and shows the relationship between BHI plan benefit designs and the level of health care utilization in Mexico.

In March 2010, the United States enacted health care reform through the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act of 2010 (hereafter "Affordable Care Act").[2] The legislation is designed to reduce the number of uninsured by expanding Medicaid and providing tax credits to subsidize health insurance premiums purchased in state-based American Health Benefit Exchanges (hereafter "exchanges"). The Congressional Budget Office (CBO) estimates that by 2019, the legislation will reduce the number of uninsured by 32 million, but approximately 23 million will remain uninsured.[3]

Many of the remaining uninsured will be immigrants, because they currently have a high uninsured rate,[4] and health reform has stricter eligibility requirements for immigrants to qualify for Medicaid and the exchanges. Documented immigrants who have resided in the United States for less than five years and all undocumented immigrants will be ineligible for federal Medicaid (except emergency care), the case prior to the Affordable Care Act. While documented immigrants, including those who have resided in the United States for less than five years, will be eligible to purchase insurance in the exchanges and receive tax credits, its higher cost relative to the health care safety net will likely reduce take-up. For example, 51% of the uninsured with incomes less than 200% of the federal poverty level (FPL) had zero out-of-pocket health care expenditures in 2007.[5] The penalty for not having insurance will induce some to purchase it; however, it is unclear how strongly the individual mandate will be enforced.

BHI between the US and Mexico is a potential way for the uninsured to gain more affordable coverage. Current actuarially-fair-priced private insurance is above most of this population's willingness to pay.[6] If Mexico-based health care providers have lower reimbursement rates than United States-based providers, then uptake of BHI products could increase. Uptake could also be increased if US public funding for the safety net and Mexico public funding for its public services were better targeted into subsidizing BHI premiums. Subsidized BHI could potentially be a lower-cost alternative offered within Medicaid managed care plans and the exchanges. The Mexican government has shown an interest in helping its US-based citizens gain access to health care, because their remittances account for 3% of Mexico's gross domestic product and the Mexican Constitution includes the right to health.[7,8]

Because of rising health care costs, there is an increased willingness of people residing in the United States to obtain health care services abroad.[9] This is sometimes referred to as medical tourism, which traditionally primarily included services that were not covered in a health plan, such as cosmetic surgery. Given that medical tourism is expanding into covered services, BHI can be thought of as a type of medical tourism. Mexico is a natural destination for medical tourism, because of its proximity to the United States. There are approximately 350 million border crossings each year, the most of any international border.[10] Based on a 2008 survey of adults residing in Texas counties along the US-Mexico border, 37% had crossed the border into Mexico in the past year to visit a physician, and 4% had crossed for inpatient care.[11] Based on a 2001 survey of adults residing in California, 1.1% (or an estimated 264 000) had crossed the border into Mexico in the past year for medical care; the percentage was higher for those living within 15 miles of the border.[12] BHI could be an important source of insurance to cover documented immigrants and US citizens who work in the United States, but return to Mexico each day, on the weekend, or at other regularly scheduled times. There is also an interest to expand Medicare coverage to US retirees living in Mexico.[13]

Commercial BHI health insurance plans have been available in California since 2000.[14] Multiple employer welfare arrangements (MEWA) BHI plans are also available through Western Growers Assurance Trust and United Agricultural Benefit Trust. In 2010, based on the Authors' estimates from contacting BHI plans and evaluating public records, there were approximately 120 000 enrollees within BHI plans, much lower than the number who could potentially benefit from BHI.

BHI enrollees are almost all Hispanic, and in 2005, approximately 11 million Hispanics resided in the 36 counties near the US-Mexico border, including 3.6 million in the 32 border counties and 7.4 million in Los Angeles, Orange, Riverside, and San Bernardino counties in California.[15-17] Of the 11 million, approximately 3-4 million were uninsured.[17] No survey has estimated how many of the 3-4 million uninsured Hispanics are documented immigrants or US citizens. However, as a point of reference, in 2010, approximately 82% of Hispanics in the US were documented immigrants or US citizens.[18,19] This percentage will likely be lower near the border, but the total number of Hispanics who are either documented immigrants or US citizens is likely to be several times higher than the existing BHI plan penetration of 120 000.

The objectives of this study include 1) estimating physician-reimbursement rate differences between Mexico-based physicians reimbursed by a BHI plan and US-based physicians reimbursed by Medi-Cal, Medicare, and US private health plans; 2) showing the relationship between BHI plan benefit designs and the share of enrollees that obtained health care in Mexico.

The findings from these research questions will inform both United States and Mexican policy makers about the extent that BHI can be used to increase coverage. This will help inform decisions about whether public funds should be used to subsidize BHI, either directly through subsidizing premiums (e.g., within the to-be-formed exchanges) or from contracting with BHI providers through, for example, Medicaid. It will also inform policy decisions regarding health care capacity requirements, particularly in Mexico, if BHI enrollment were to increase.

Materials and methods

Data materials

The primary data are from *Sistemas Médicos Nacionales* (SIMNSA) and *Salud con Health Net*. We chose to analyze these BHI plans, because they have the largest number of BHI enrollees, and their membership and claims data were made available and deemed reliable. SIMNSA is a Mexico-based health maintenance organization (HMO) with over 300 physicians, three medical clinics, a surgical center (within one clinic), and a laboratory. Its services are provided in Mexico, in Tijuana, Tecate, and Mexicali, which are near San Ysidro, Tecate, and Calexico, respectively, in California. In 2000, SIMNSA received a license from California's Department of Managed Health Care to market its health plans to employers in California. In the US, SIMNSA's plans only cover emergency and urgent care services, and in Mexico, comprehensive care is covered. Based on a survey of 11 000 enrollees in their clinics, 73% reported that they resided in the United States and the remaining 27% reported that they resided in Mexico. SIMNSA also partners with Health Net and Aetna to provide Mexico-based services within those insurers' BHI plans. As of December 31, 2009, SIMNSA had 23 930 enrollees, which included enrollees in its own plans and enrollees through its partner plans, in which the enrollee selected SIMNSA as its physician provider group. The claims data include 33 841 unique enrollees with 1.9 million claims from January 1, 2004 to November 30, 2009.

Salud con Health Net is a BHI employer-based plan between Health Net in California and SIMNSA in Northern Mexico. This plan is administered by Health Net; SIMNSA is one of many physician provider groups (PPG) in *Salud con Health Net's* provider network, but is the only one based in Mexico. The plan began in 2000, and as of December 31, 2008, had approximately 35 000 enrollees through 1 100 employers located in Southern California within Orange, Riverside, Los Angeles, and San Bernardino Counties. The claims data include 53 909 unique HMO enrollees with a California-based PPG during the period January 1, 2004 to December 31, 2008. Approximately 95% of enrollees are enrolled in an HMO plan; the remaining enrollees are enrolled in either a preferred provider organization (PPO) or an exclusive provider organization (EPO) plan. An HMO enrollee must select a PPG that is located within 30 miles of his or her residence or workplace, and has the option of selecting SIMNSA in Mexico as his or her PPG if he or she lives or works within 50 miles of the US-Mexico border. If an enrollee selects a California-based PPG, he or she can access care with lower cost sharing in Mexico through SIMNSA's network using a point of service option. If a subscriber's dependent lives in Mexico, then the dependent must select SIMNSA as his or her PPG, and his or her health care services are only covered in Mexico. As of 2008, approximately 3% of *Salud con Health Net* enrollees had SIMNSA as their PPG. The share was low, partially because the plan had not been marketed within the two California counties that border Mexico (San Diego and Imperial Counties) until October 2009.

Methods

To estimate physician reimbursement rate differences between Mexico-based physicians reimbursed by a BHI plan and US-based physicians reimbursed by Medi-Cal, Medicare, and US private health plans, we selected physician procedures based on their high prevalence

in the SIMNSA dataset, which includes enrollees from SIMNSA's own plans and enrollees from its partnerships who selected SIMNSA as their PPG. The SIMNSA data included 287 290 fee-for-service claims for the following five categories: office visits, emergency, pathology and x-ray, hospital visits, and surgery. We selected the 35 most common procedures within these categories, in order to have at least 150 claims per procedure. This resulted in 149 400 claims, or 52% of the original number of claims. The procedures are identified by the Current Procedural Terminology (CPT) coding system, which is owned and maintained by the American Medical Association. The Medi-Cal reimbursement rates were obtained from the California Department of Heath Care Services,[20] and Medicare reimbursement rates were obtained from the Centers for Medicare and Medicaid Services (CMS).[21] The CMS data include the Medicare Physician Fee Schedule Relative Value file and the Geographic Practice Cost Index. To calculate the Medicare physician reimbursement rate, we used the 2009 transitioned, non-facility relative value units in combination with the Geographic Practice Cost Index (GPCI) for the San Diego metropolitan area, which was carrier/locality code 01192-99. For each CPT, we divided SIMNSA's mean physician reimbursement by Medi-Cal's reimbursement, to calculate SIMNSA's reimbursement as a percentage of Medi-Cal's. We used the same method to calculate SIMNSA's reimbursement as a percentage of Medicare's. To calculate SIMNSA's reimbursement as percentage of US private plans' reimbursement, we assumed Medicare's reimbursement averages 78% of US private plans, and then applied the same methodology. The results are reported using 25-percentage-point ranges when Medi-Cal's reimbursement was at least $50, and 50-percentage-point ranges when Medi-Cal's reimbursement was less than $50. Ranges are reported to protect the confidentiality of the SIMNSA reimbursement rates.

To show the relationship between BHI plan benefit designs and the share of enrollees that obtained health care in Mexico, we calculated the share of SIMNSA enrollees that obtained health care in Mexico and the share of *Salud con Health Net* HMO enrollees with a California PPG that obtained care in Mexico.

Results

Physician reimbursement rate comparison between the US and Mexico

This section reports physician reimbursement rate differences between Mexico-based physicians reimbursed by SIMNSA and US-based physicians reimbursed by Medi-Cal, Medicare, and US private health plans. Table I summarizes the SIMNSA data by year, including the number of enrollees and claims; average expenditures; and the age distribution of enrollees with claims. The expenditure data includes all expenditures from Mexico, including physician services, hospital care, pharmaceuticals, optometry, and dentistry. In 2008, the most recent year with a full year of available claims data, there were 20 875 enrollees. The mean expenditure per enrollee in Mexico was $761 ($US 2009), including a SIMNSA reimbursement of $682 and patient cost sharing of $79. During 2004-2009, there were approximately 120 SIMNSA claims per year in the United States; however, expenditure data for these claims were not available.

Table II shows that the SIMNSA's fee-for-service physician reimbursement rate for Mexico-based physicians averaged 50.7% (95% CI: 34.5%-67.0%) of Medi-Cal's reimbursement for US-based physicians; this percentage and all aggregate percentages are weighted, based on the number of procedures in the SIMNSA claims data. The SIMNSA reimbursement for a particular CPT code varied among claims; however, outliers did not have substantive impact, because SIMNSA's median physician reimbursement rate was 47% of Medi-Cal's reimbursement, close to the 50.7% average. SIMNSA's average reimbursement rate was 28.3% (95% CI: 19.6%-37.0%) of Medicare's, and was 22% of US private plans', assuming Medicare's reimbursement averages 78% of US private plans.[22] SIMNSA's average reimbursement as a percentage of Medi-Cal's reimbursement by category of procedure was as follows: office visits (50-100%), emergency (1-25%), pathology and x-ray (50-100%), hospital visits (100-150%), and surgery (25-50%). Ranges, instead of exact percentages, are reported to protect the confidentiality of the SIMNSA reimbursement rates.

Binational health insurance plan benefit designs and Mexico utilization

This section reports the relationship between BHI plan benefit designs and the share of enrollees that obtained health care in Mexico. For both the SIMNSA and Salud con Health Net plans, patient cost sharing depends on whether care is accessed in the United States or Mexico. Table III shows the cost sharing differences in the US versus Mexico for a typical SIMNSA and *Salud con Health Net* contract for common health care service categories. The difference is most stark for the SIMNSA plan, because the plan does not cover non-emergent/urgent care in the United States, where the enrollee is responsible for paying the full cost of that care. For care

Table I
Sistemas Médicos Nacionales (SIMNSA), data summary

Variable	*Average*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009**
Enrollees and claims							
Enrollees	19 113	15 798	16 435	17 908	19 730	20 875	23 930
Enrollees with claims	14 810	12 213	13 339	13 842	15 362	16 884	17 218
Percent with claims	77	77	81	77	78	81	72
Claims	309 352	241 639	258 993	288 818	330 326	383 718	352 620
Claims per enrollee	20.9	19.8	19.4	20.9	21.5	22.7	20.5
Expenditures per enrollee ($US 2009)							
Average SIMNSA reimbursement	580	522	564	571	624	682	519
Average enrollee copayment	70	64	63	70	74	79	67
Total	650	586	628	641	698	761	586
Age of enrollees with claims							
Mean (years)	32.9	32.5	32.2	32.4	33.1	33.5	33.7
Percent in age-year range							
0-9	14	15	15	14	14	13	13
10-19	17	16	17	18	17	17	18
20-29	9	9	9	9	10	10	10
30-39	16	18	17	16	15	14	14
40-49	23	24	23	23	23	23	23
50-59	16	15	14	15	16	17	17
60-64	3	3	3	3	4	4	4
65+	2	1	2	2	2	2	2

Notes:
* The data for 2009 are from January 1 to November 30

Data source: SIMNSA membership and claims data
Dates and location of study: 2004-2009 in Northern Mexico and California

accessed in Mexico, the enrollee pays a relatively small copayment, such as $5 for a physician visit or $25 for an emergency room or urgent care visit.

For the *Salud con Health Net* plan, patient cost sharing depends on whether the enrollee accesses services in the United States through the plan's California Health Net Salud Network, or whether the enrollee accesses services in Mexico through the plan's SIMNSA Network. For physician visits, the California Health Net Salud Network copayment is $15 and the SIMNSA Network copayment is $5, a difference of only $10. However, for a hospitalization, the California Health Net Salud Network copayment ($250) is much higher than the SIMNSA Network copayment ($0), and similarly, for an outpatient visit to a hospital or skilled nursing facility, the California Health Net Salud Network coinsurance (20%) is much higher than the SIMNSA Network coinsurance (0%).

Table IV shows that SIMNSA enrollees almost exclusively accessed health care services in Mexico, while *Salud con Health Net* enrollees rarely accessed health care services in Mexico. During 2004-2009, there was an annual average of 19 113 SIMNSA enrollees, and they generated approximately 120 emergency- and urgent-care claims per year in the United States. Therefore, on average, at least 99.4% of enrollees exclusively utilized health care services in Mexico each year. The 99.4% estimate is a lower-bound estimate, because the same enrollee may have generated more than one claim in the US during a given year.

In contrast, during 2004-2008, there was an annual average of 17 703 *Salud con Health Net* HMO enrollees with a Mexico point of service option insured through employers in Orange, Riverside, Los Angeles, and San Bernardino Counties, of whom, an average of only 22 (or 0.1%) utilized health care services in Mexico through

Table II

Physician reimbursement rate comparison by current procedural terminology code and payer

Procedure (current procedural terminology [CPT] code)	*SIMNSA (% of Medi-Cal)**	*Medi-Cal ($US 2009)*	*Medicare ($US 2009)*	*N (SIMNSA)*
Office visits				
Therapeutic procedure - 15 minutes (97110)	100-150	11	29	6 953
Office visit established patient - 15 minutes (99213)	50-100	24	63	47 289
Office visit new or established patient - 15 minutes (99241)	50-100	30	49	9 112
Office visit new or established patient - 30 minutes (99242)	1-50	46	92	37 327
Office visit new or established patient - 40 minutes (99243)	25-50	58	126	4 902
Subtotal	50-100			105 583
Emergency				
Emergency department visit (99285)	1-25	106	169	11 608
Pathology and X-ray				
X-ray exam of skull (70250)	100-150	25	36	694
X-ray exam of neck (70360)	100-150	17	27	372
X-ray exam of chest, 2 views (71020)	50-100	25	32	2 554
X-ray exam of chest, at least 4 views (71030)	50-100	34	47	371
X-ray exam of neck spine (72040)	100-150	25	37	894
X-ray exam of lower spine (72100)	100-150	30	39	2 426
MRI neck spine without dye (72141)	25-50	564	537	167
X-ray exam of knees (73565)	100-150	19	30	886
X-ray exam of foot (73630)	50-100	24	31	852
X-ray of abdomen, single view (74000)	100-150	17	26	694
X-ray of abdomen, complete (74020)	100-150	31	41	634
Contrast x-ray, bladder (74430)	150-200	37	80	617
Ultrasound, pelvic, complete (76856)	25-50	66	123	5 093
Testicular imaging with vascular flow (78761)	25-50	85	208	352
Tissue exam by pathologist (88304)	200+	37	64	731
Electrocardiogram, tracing (93005)	100-150	16	12	1 211
Subtotal	50-100			18 548
Hospital visits				
Subsequent hospital care, minor complication (99232)	100-150	37	67	167
Subsequent hospital care, unstable patient (99233)	100-150	45	96	8 424
Hospital discharge day management (99238)	50-100	37	67	1 719
Subtotal	100-150			10 310
Surgery				
Removal of breast lesion (19120)	50-75	207	416	246
Repair of nasal septum (30520)	50-75	365	552	288
Endovenous laser, first vein (36478)	1-25	1 794	1 463	323
Remove tonsils and adenoids (42820)	75-100	165	272	413
Repair of anal stricture (46700)	50-75	361	561	244
Laparoscopic cholecystectomy (gallbladder removal) (47562)	50-75	457	654	790
Circumcision (54161)	50-75	124	205	230
Repair of vagina (57260)	25-50	596	762	293
Dilation and curettage (uterus) (58120)	50-75	219	237	231
Division of fallopian tube (58600)	1-25	743	342	293
Subtotal	25-50			3 351
Total	50.7 (95% CI: 34.5-67.0%)			149 400

Notes:

* SIMNSA's physician reimbursement as a percent of Medi-Cal's reimbursement is reported in 25-percentage-point ranges, and the range is increased to 50 percentage points if the Medi-Cal reimbursement rate was less than $50. Ranges are reported to protect the confidentiality of the SIMNSA reimbursement rates. The total and subtotal percentages are weighted, based on the number of SIMNSA observations

N: Number of SIMNSA claims. CI: confidence interval

Data sources: SIMNSA claims data, Medi-Cal reimbursement rates, and Medicare reimbursement rates

Dates and location of study: 2004-2009 in Northern Mexico and California

Table III

SIMNSA and Salud con Health Net patient cost sharing by health care network

Heath care service category	SIMNSA		Salud con Health Net	
	US-Based Health Care*	Mexico-Based Health Care in SIMNSA Network	California Health Net Salud Network	Mexico SIMNSA Network‡
Physician visit	Full cost	$5	$15	$5
Hospitalization admission	Full cost	$0	$250	$0
Skill nursing facility (SNF) inpatient treatment	Full cost	$0	20%	0%
Outpatient services from hospital or SNF	Full cost	$0	20%	0%
Emergency room visit§	$100	$25	$50	$10
Urgent care center visit§	$50	$25	$15	$10

Notes:

* In SIMNSA's plan, the patient is responsible for the costs of non-emergent or non-urgent health care accessed in the United States. SIMNSA covers emergency and urgent care accessed in the United States, including related inpatient hospitalization services, until the patient can be safely transferred to a SIMNSA-contracted hospital in Mexico

‡ The Mexico SIMNSA Network cost sharing applies to Salud con Health Net enrollees with a California-based physician provider group (PPG) who initiate a point of service (POS) option with SIMNSA, as well as to Salud con Health Net enrollees who have SIMNSA as their physician provider group

§ Copayment is waived if admitted to hospital, except for SIMNSA US-based health care

Dates and location of study: 2004-2009 in Northern Mexico and California

Table IV

Share of binational health insurance enrollees that obtained care in Mexico by binational health insurance plan

Variable	SIMNSA (2004-2009)*	Salud con Health Net HMO (2004-2008)
Average annual number of enrollees‡	19 113	17 703
Average number of enrollees who obtained care in Mexico each year	18 993	22
Average percent of enrollees who obtained care in Mexico each year§	99.4	0.1

Notes:

* The data for SIMNSA for 2009 is from January 1 to November 30

‡ The average annual number of enrollees for Salud con Health Net during 2004-2008 was 18 703. Of this number, approximately 1 000 enrollees were in enrolled in the Mexico-only HMO. In that HMO, health care services are only covered in Mexico, except emergency and urgent care services are also covered in the United States. We excluded these enrollees from our analysis, because could not obtain care in Mexico using a point of service option

‡ The SIMNSA estimate showing that 99.4% of their enrollees obtained care in Mexico each year is based on SIMNSA enrollees generating approximately 120 emergency- and urgent-care claims per year in the United States. Hence, the 99.4% estimate is a lower-bound estimate, because the same enrollee may have generated more than one claim in the United States during a given year

Dates and location of study: 2004-2009 in Northern Mexico and California

their point of service option each year. This totaled 288 claims over the five-year period, including 281 professional and 7 institutional claims. The 281 professional claims were mainly visits for an established patient (37%) or a new patient (17%), and only a small number were for an emergency room visit (7%). The patients' diagnoses varied substantially. Hypertension was the most commonly cited diagnosis (9%), followed by asthma (4%). The seven institutional claims were mainly for the emergency room or surgery with various diagnoses, such as heart failure and deviated nasal septum.

Discussion

The study produced two key findings. First, *Sistemas Médicos Nacionales* (SIMNSA) binational health insurance HMO physician reimbursement rates in Mexico were approximately one-half of Medi-Cal's reimburse-

ment rates. Second, strong incentives to access services in Mexico are needed, in order to realize the full potential cost savings of BHI. SIMNSA only covers emergency and urgent care services in the US, and the study found that over 99% of their enrollees exclusively accessed health care services in Mexico. While high utilization in Mexico was expected because of the plan's benefit design, the results shows that enrollees did not significantly use emergency rooms for non-emergent care, and did not seem to delay needed health care, until it became emergent. On the other hand, *Salud con Health Net* covers comprehensive care in the US, but an enrollee can access care with lower cost sharing in Mexico through SIMNSA's network, using a point of service option. Less than 1% of *Salud con Health Net*'s enrollees accessed health care services in Mexico. The health care utilization differences in Mexico between these plans illustrate that if a plan does not have strong incentives for enrollees to access Mexico-based care, there will be low health care utilization in Mexico, which significantly reduces the potential savings from lower cost care in Mexico.

A discussion of the study's limitations follows. The physician reimbursement rate comparison is limited to the SIMNSA BHI plans. Further research is needed to determine whether SIMNSA's reimbursement rates are representative of other BHI plans, and future work should compare reimbursement rates for other types of physician services, as well as other health care costs such as inpatient hospital care, medical devices, and pharmaceuticals. SIMNSA claim amounts, particularly the surgery claim amounts, may include some non-physician labor reimbursements. This implies that our estimate of SIMNSA's physician reimbursement rates relative to the other payers' represents an upper bound, as SIMNSA's relative rates may even be lower.

The analysis of the share of enrollees obtaining care in Mexico was limited to SIMNSA's and *Salud con Health Net*'s benefit designs. Further research is needed to determine how different BHI plan benefit designs and patient cost sharing between the United States and Mexico affect enrollee health care utilization in Mexico. Furthermore, *Salud con Health Net* did not market within the border counties of San Diego and Imperial Counties until October 2009, and our data only included the years 2004 to 2008. Because these counties border Mexico, data from these enrollees are needed to determine whether they are more likely to access SIMNSA in Mexico using the point of service option.

The data did not include information as to why *Salud con Health Net* enrollees did not have higher health care utilization in Mexico, which may be related quality of care, the time it takes to cross the border, and drug-related violence. Quality of care from Mexico's private providers is heterogeneous, ranging from high-quality care that serves Mexico's wealthy and competes with US care, to lower-quality care provided by physicians who lack residency training.[23] Therefore, future research should estimate BHI plans' quality of care and compare it to the US's health care safety net's quality of care near the border, where coordination of care and access to specialists is often lacking.

Although there are approximately 350 million border crossings each year, the time to cross can significantly vary, making it difficult to be on time for a scheduled health care visit.[9,24] Drug-related violence has recently soared in Mexico,[25] but its impact on obtaining care in Mexico is not known. Both of these areas should be the subject of future research, to better understand their adverse impact on individuals crossing the border for health care.

While BHI plans between the United States and Mexico are a potential way to provide more affordable health insurance to uninsured individuals, based on the two plans analyzed, however, it appears that BHI plans offering comprehensive care in the United States with solely a point of service option in Mexico are unlikely to drive utilization to Mexico and significantly lower costs. In order to realize the full potential cost savings of BHI, stronger incentives to access services in Mexico are needed, such as higher cost patient cost sharing for services accessed in the US.

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