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An Evaluation of the Children's Health Insurance Program

Julia Ross
Fall 2014

ABSTRACT

This report takes a holistic approach to understanding the Children's Health Insurance Program in order to discern the ways in which the political tradeoffs made to enable its passage affect its ability to meet the health needs of America's children. The history and legislative development of this program is discussed first, with emphasis on the reauthorization efforts from 2007 to 2009. The second part of the report is an econometric analysis of Louisiana's Children's Health Insurance Program, LaCHIP. This analysis seeks to establish a relationship between the adoption of "best practices" in the administration of LaCHIP and the resulting changes in the incidence of unmet health needs among children eligible for the program. The analysis concludes that the adoption of one best practice in isolation did not have an effect on the odds of an eligible child having an unmet health need.

Introduction

Recent discussions of health reform have revolved around the creation and implementation of the Patient Protection and Affordable Care Act (PPACA), also known as *Obamacare*. Billed as everything from government subjugation of individual rights to a means of extending the right of healthcare to all Americans, the legislation, passed along party-lines in the Democratically controlled House of Representatives in 2010¹, is routinely cited as evidence of American political polarization. The 113th Congress is on track for consideration as the least productive Congress since the 1970s, and only 23% of Americans say their opinion of congress is “favorable.”² Though data has begun to emerge regarding insurance enrollment levels, access to physicians, use of services, and cost of health care, in the summer of 2014 it is yet too soon to empirically judge the effects of the law on the lives of Americans. Attempts to improve and refine the law have been broadly thwarted, and pieces of the legislation are still making their way through the American court system.³ A general consensus, emerging from across the political spectrum, argues that for a variety of reasons, the PPACA was not the magic bullet for the enigmatic American healthcare system. American healthcare reform appears dead in the water. But, alas, we have been here before.

President Clinton’s approval ratings following the failure of his health reform efforts in November 1993 were 48%- only four percent higher than President Obama’s in April of

¹ Kaiser Family Foundation. “Summary of the Affordable Care Act.” Accessed August 1, 2014. <http://kff.org/health-reform/fact-sheet/summary-of-the-affordable-care-act/>

² Pew Research Center. “Congressional Favorability Data Trend.” Accessed August 1, 2014. <http://www.pewresearch.org/data-trend/political-attitudes/congressional-favorability/>

³ CBS News. “Dueling rulings on critical part of Obamacare.” Accessed August 1, 2014. <http://www.cbsnews.com/news/dueling-rulings-on-critical-part-of-obamacare/>

2014.⁴⁵ The mid-1990s also saw relatively low rates of congressional productivity in the first three quarters of the term. Productivity in the two years before 1997 mirrored 2009-2014 with less than 200 bills passed before the August recess. The 1994 midterm elections had seen previously democratic districts elect “little-know republican challengers”, a story which again became familiar in 2010 midterms.⁶ In the 1996 State of the Union Address, President Clinton declared that “the era of big government is over,” and for the first time in history eliminated an individual federal entitlement program, Aid for Families with Dependent Children.^{7 8} In 1997, Congress was united under the flag of the G.O.P. in opposition to President Clinton’s attempts at progressive leadership. And yet, in 1998, congress voted to raise taxes to fund what was in the words of co-sponsor Senator Edward Kennedy (D-MA) “the most far-reaching advance in health care since the enactment of Medicare and Medicaid a generation ago.”⁹ The Children’s Health Insurance Program (CHIP) was established in 1997 as Title XXI of the Social Security Act in response to a call to action by President Clinton that “no child should be without a doctor just because a parent is without a job.”¹⁰ Or, in the words of co-sponsor Senator Orrin Hatch (R-UT), to prove that

⁴ Gallup, Inc. “Presidential Approval Ratings—Bill Clinton.” Accessed August 1, 2014. <http://www.gallup.com/poll/116584/presidential-approval-ratings-bill-clinton.aspx>

⁵ Pew Research Center. “Presidential Approval.” Accessed August 1, 2014.

<http://www.pewresearch.org/data-trend/political-attitudes/presidential-approval/>

⁶ The New York Times. “The 1994 elections: the overview.” Accessed August 1, 2014.

<http://www.nytimes.com/1994/11/09/us/1994-elections-overview-gop-wins-control-senate-makes-big-gains-house-pataki.html?src=pm&pagewanted=2>

⁷ The Washington Post. “1996 State of the Union Address.” Accessed August 1, 2014.

<http://www.washingtonpost.com/wp-srv/politics/special/states/docs/sou96.htm>

⁸ Samuel Flint, “How Bipartisanship and Incrementalism Stitched the Child Health Insurance Safety Net (1982-1997),” *Health and Social Work* 39, no. 2 (2014):110

⁹ Kaiser Health News. “A Timeline of Kennedy’s Health Care Achievements and Disappointments.” Accessed August 1, 2014. <http://www.kaiserhealthnews.org/stories/2009/august/26/kennedy-health-care-timeline.aspx>

¹⁰ Washington Post. “1997 State of the Union.” Accessed August 1, 2014.

<http://www.washingtonpost.com/wp-srv/politics/special/states/docs/sou97.htm>

his party “does not hate children.”¹¹ Today, the Children’s Health Insurance Program provides coverage to 8 million children and pregnant women who are unable to qualify for Medicaid and cannot afford private insurance.¹²

The following report is in two parts. The first traces the development of CHIP from its creation to its current implementation, examining the politics and policies that created state-level variation in structure and administration of health insurance for American children. The second part takes an analytic look at state level variation in Children’s Health Insurance Programs (CHIPs) through an econometric case study of LaCHIP (Louisiana’s Children’s Health Insurance Program). It is critical to examine CHIP today because its legislation will require reauthorization in 2015. Understanding the consequences of the political tradeoffs involved in the process of creating and implementing CHIP is critical to understanding how to improve the program in 2015.

¹¹ Robert Pear. “Hatch Joins Kennedy to Back a Health Program,” *New York Times*, March 14, 1997. Accessed August 1, 2014. <http://www.nytimes.com/1997/03/14/us/hatch-joins-kennedy-to-back-a-health-program.html>

¹² Medicaid.gov. “Children’s Health Insurance Program (CHIP)” Accessed August 1, 2014. <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Childrens-Health-Insurance-Program-CHIP/Childrens-Health-Insurance-Program-CHIP.html>

Part 1. An exploration of the legislative history of the Children's Health Insurance Program

The two decades preceding the establishment of CHIP saw broad cuts to the social safety net with mixed implications for children's health insurance coverage. Samuel Flint, a former executive member of the American Academy of Pediatrics, offers a riveting history of the effects of Reagan's "New Federalism" on the development of a childhood social safety net in his recent article in *Health & Social Work*.¹³ He posits that the many small steps taken between 1981 and 1997 by a tightly knit coalition of child advocacy organizations, armed with a politically palatable cause for which small investments could create enormous returns are largely responsible for the depth and breadth of the current childhood safety net. Indeed, since the passage of CHIP, the percent of uninsured children has fallen nearly 6 percentage points.¹⁴ Immediately before the passage of the PPACA, as Flint points out, only 3.5% of uninsured children were ineligible for a government funded program.¹⁵ Though both of those metrics indicate that there is still much work to be done, the passage of CHIP and its subsequent reauthorization have changed the landscape of children's health.

The Creation of CHIP: Partnerships Lead to Passage

The legislative establishment of the program, in spite of its noble purpose and bipartisan support, was not a smooth process. The effort was lead by the late Senator Edward Kennedy (D-MA). Kennedy was the chairman of the Senate's Labor and Human Resources Committee, now known as the Health, Education, Labor and Pensions

¹³ Flint, "How Bipartisanship and Incrementalism," 110.

¹⁴ Children's Defense Fund. "State of America's Children 2014." Page 30. Accessed August 1, 2014. <http://www.childrensdefense.org/child-research-data-publications/data/2014-soac.pdf>

¹⁵ Flint, "How Bipartisanship and Incrementalism." 109.

Committee (HELP). The bay-stater worked frequently on bipartisan efforts. The year before the passage of CHIP, Kennedy collaborated with Senator Nancy Kassebaum (R-KS) on the Health Insurance Portability and Accountability Act (HIPAA), and his partnerships with Senator Hatch were common.¹⁶ They announced their plans to work together for children's health in March of 1997.¹⁷

CHIP legislation went through several iterations before becoming Public Law 105-33 on August 5, 1997.¹⁸ President Clinton had originally asked for \$16 Billion for the expansion of Medicaid and to subsidize private insurance.¹⁹ However, the 1996 replacement of AFDC, an entitlement program, with Temporary Assistance to Needy Families (TANF), a block grant program, had set a precedent for allowing individual states to design their own safety nets.²⁰ This provided a bargaining chip to Kennedy and Hatch. Block grant programs were of interest to Republican legislators because they gave power back to state governments in two ways- states were under no obligation to participate and they could design their own programs within certain limits. Still, an early plan that featured a \$0.20 "vice tax" on cigarettes and tobacco products to fund the block grants was blocked in the House.²¹

Three other arguments, neatly articulated by Flint, helped CHIP gain popularity among conservatives and moderates. The first is that it is hard for a politician to argue

¹⁶ Kaiser Health News. "Kennedy Timeline."

¹⁷ Robert Pear, "Hatch Joins Kennedy."

¹⁸ GovTrack. "H.R. 2014 (105th): Balanced Budget Act of 1997." Accessed August 1, 2014.

<https://www.govtrack.us/congress/bills/105/hr2015>

¹⁹ PBS NewsHour. "Background: Caring for Children." Aired August 25, 1997. Accessed August 1, 2014.

http://www.pbs.org/newshour/bb/health-july-dec97-healthcare_8-25a/

²⁰ Flint. "How Bipartisanship and Incrementalism," 110.

²¹ Jerry Gray. "Through Senate Alchemy, Tobacco Is Turned into Gold for Children's Health," *New York Times*. August 11, 1997. Accessed August 1, 2014. <http://www.nytimes.com/1997/08/11/us/through-senate-alchemy-tobacco-is-turned-into-gold-for-children-s-health.html>

against a program for children. At the time, 10 million children were uninsured and 80% of them had at least one parent who was working and paying taxes.²² Of the 10 million, two-thirds were in families that only made slightly too much to qualify for Medicaid.²³ In Flint's words, it was a "national scandal" to leave these children vulnerable. The second argument was that investing in today's children would be an investment in the future US workforce. Finally, insuring children was a low cost way to reduce the total number of uninsured people, quieting a common rallying point for politicians on the left. Children and youth are, broadly speaking, a healthy, low-risk population. Data from the early 1990s showed that at the time, per-capita child health care costs were less than half of those of an adult and less than a seventh of an older adult.²⁴ In short, insuring children was an easily defensible position socially and economically.²⁵

The Final Plan: Benefits and Structural Options

The final plan included a \$0.15 tax increase on tobacco products and passed successfully at the end of summer 1997.²⁶ The federal government offered states reimbursement rates (Federal Medical Assistance Payments – FMAPs) that were 30% higher than the 70% level of their Medicaid match rate. These higher reimbursement rates (averaging 13% higher than Medicaid) incentivized states to create programs and physicians to accept CHIP patients in their practices. CHIP was created with an annual federal cap from which states received their allotments. State allotments were calculated based on the number of uninsured and low income individuals in each state and state level

²² Washington Post. "1997 State of the Union"

²³ PBS NewsHour. "Background: Caring for Children"

²⁴ Waldo, D. R., Sonnefeld, S. T., McKusick, D. R., & Arnett, R. H. "Health expenditures by age group, 1977 and 1987." *Health Care Financing Review* 10 (1989), 111-120.

²⁵ Flint, "How Bipartisanship and Incrementalism."

²⁶ Gray, "ThroughSenate Alchemy, Tobacco."

wage data. States were allowed to use up to 10% of their allotment on outreach and recruitment. Over the first 10 years of the program, the total allotment was \$39 Billion.²⁷

The final text of the bill allowed states three options for creating their CHIPs. The first was to expand Medicaid for children up to 200% of the Federal Poverty Level (FPL).²⁸ This option was considered the most secure because kids remained insured under Medicaid, an entitlement program, even if CHIP failed to get reauthorized. The second was to create a separate program, which met certain benefit benchmark levels. The third was to do a combination of both- Medicaid expansion for certain income groups and a subsidized private program for higher income groups.²⁹ Though the program was optional, all 50 states and Washington, D.C. opted to participate.³⁰ The federal program would need to be reauthorized every 5 years.³¹

The program first came up for reauthorization in 2003. Bipartisan votes in the House and Senate sought to expand the program. Though the program was reauthorized, President Bush vetoed any efforts for expansion.³²

The Reauthorization Battle: 2007-2009

In the summer of 2007, the House and Senate again attempted to expand CHIP. Two versions of a Children's Health Insurance Program Reauthorization Act (CHIPRA) were brought forward. HR 3162 proposed a 50 billion dollar increase in funding over five years,

²⁷ Jeanne Lambrew, "The State Children's Health Insurance Program: Past, Present, and Future," *The Commonwealth Fund Commission on a High Performance Health System* (2007), 1-4

²⁸ Kaiser Commission on Medicaid and the Uninsured, "State Children's Health Insurance Program (CHIP): Reauthorization History," 2009. Accessed August 1, 2014. <http://kff.org/medicaid/fact-sheet/state-childrens-health-insurance-program-schip-reauthorization/>

²⁹ The National Academy for State Health Policy. "Chip Fact Sheets." Accessed August 1, 2014. <http://www.nashp.org/all-states-chip-fact-sheets>

³⁰ Flint, "How Bipartisanship and Incrementalism," 114.

³¹ GovTrack, "H.R. 2014 (105th)."

³² Kaiser Commission on Medicaid and the Uninsured, "State Children's Health Insurance Program."

the enrollment of 5 million more kids, increasing the age limit to 21, and expanded eligibility to pregnant women and children who were legal immigrants. The Senate proposed a different means of expansion including a 35 billion dollar increase over the baseline funding levels in order to enroll 4 million more kids, broadening eligibility to 300% FPL, and allowing parents to enroll in CHIP as well.³³ Though HR 3162 passed in the House, it failed in the Senate. The Senate bill (S 1893) failed to pass out of the committee stage.³⁴

In the fall of 2007, the House and Senate were able to agree on a reauthorization bill. HR 976 was similar to S 1893, but included enhanced measures to prevent “crowd-out” – a phenomena in which families who can afford private insurance opt instead for a lower cost public option, hurting the insurance industry’s risk pools and bottom lines. Crowd-out prevention measures include requiring that children are uninsured for a certain period of time (3 months to 1 yr depending on the state) before becoming eligible for CHIP. The Government Accountability Office (GAO) and Institutes of Medicine (IOM) would also be involved in helping states that chose to enroll children up to 300% of the FPL with preventing crowd-out.³⁵ This bill was vetoed by President Bush, and the override vote failed in the House.³⁶

HR 3963 was written in response to critiques of HR 976, and passed in both the House and the Senate. HR 3963 included more citizenship verification requirements and incentivized the use of premium assistance for private insurance over Medicaid expansion.

³³ Ibid.

³⁴ GovTrack, “H.R. 3162 (110th): Children’s Health and Medicare Protection Act of 2007.” Accessed August 1, 2014 <https://www.govtrack.us/congress/bills/110/hr3162>

³⁵ Kaiser Commission on Medicaid and the Uninsured, “State Children’s Health Insurance Program.”

³⁶ GovTrack, “H.R. 976 (110th): Children’s Health Insurance Program Reauthorization Act of 2007” Accessed August 1, 2014. <https://www.govtrack.us/congress/bills/110/hr976>

Additionally, it prohibited the use of CHIP funds for children in families with incomes over 300% FPL.³⁷ This bill was also vetoed by President Bush, and the veto override failed in January 2008.³⁸

S 2499 was passed with little time before funding ran out in January 2009.³⁹ This was a classic “kicking-the-can” bill meant to extend current CHIP funding levels through 2009. The bill did address projected funding short falls by appropriating 1.6 billion in 2008 and 275 Million in 2009, on top of the current funding levels of 5 billion per year. President Bush’s FY 2009 budget would have increased SCHIP allotments by nearly 20 Billion over the next 4 years, but would have put a “hard-cap” on eligibility at 250% FPL.⁴⁰ These provisions provided for significantly less coverage and funding than the bills that passed the House and Senate.

A reauthorization and expansion of CHIP was passed in the first 100 days of President Obama’s first term. It closely resembled the first CHIPRA bill, HR 976, with a few additional provisions. States would be allowed to offer supplemental dental coverage for children who are eligible for CHIP but have private insurance, and legal immigrant pregnant women and children would be allowed to access CHIP coverage within their first five years of legal residence. Additionally, the final CHIPRA bill creates a commission to review Medicaid and Chip and submit reports to Congress.⁴¹ However, debate on CHIP reform would continue through the debates surrounding the passage of the PPACA.

³⁷ Kaiser Commission on Medicaid and the Uninsured, “State Children’s Health Insurance Program.”

³⁸ GovTrack. “H.R. 3963 (110th): Children’s Health Insurance Program Reauthorization Act of 2007” Accessed August 1, 2014. <https://www.govtrack.us/congress/bills/110/hr3963>

³⁹ GovTrack. “S. 2499 (110th): Medicare, Medicaid, and SCHIP Extension Act of 2007” Accessed August 1, 2014. <https://www.govtrack.us/congress/bills/110/s2499>

⁴⁰ Kaiser Commission on Medicaid and the Uninsured. “State Children’s Health Insurance Program.”

⁴¹ Ibid.

CHIP and the PPACA

The PPACA did not make significant changes to CHIP, but rather redoubled the efforts made by HR 976 to broaden CHIP's role within the social safety net. The eligibility levels set by HR 976 would be maintained through 2019, and funding was extended through 2015. The cost sharing options would remain limited to nominal levels for families within 150% of the FPL and less than 5% of total income for families above that level.⁴² Benefit package requirements were also left unchanged. In an effort to improve horizontal equity, children of state employees who were CHIP eligible would be allowed to enroll, even if they are eligible for the private state employees insurance plan. Families with children who were eligible for CHIP but could not be enrolled due to waitlists would be eligible for tax credits when enrolling on the insurance exchanges. Finally, the FMAPs would be increased by 23% up to a max of 100% (previously 80%) in 2015. This meant that some states' program costs would be fully funded by the federal government.⁴³

Overall, the PPACA's additional support for CHIP programs bodes well for the future of American children's access to healthcare. However, between the many options for states in program structure, enrollment rules, and benefits in addition to their options via the PPACA for Medicaid expansion, a child's access to healthcare is increasingly arbitrary and almost entirely dependent on her zip code. In 2014, one third of all uninsured children lived in California, Florida, or Texas. Of the 7.2 million uninsured children, nearly 70% were eligible but not enrolled in a CHIP program, and almost 50% lived in the South.⁴⁴

⁴² Lambrew. "The State Children's Health Insurance Program: Past, Present, and Future," 4.

⁴³ Kaiser Family Foundation. "Summary of the Affordable Care Act."

⁴⁴ Children's Defense Fund. "State of America's Children 2014," 30.

The following is an econometric analysis conducted to evaluate the Louisiana Children's Health Insurance Program. As previously discussed, the flexibility afforded to states by the block grant funding scheme allows the administration of CHIPs to vary significantly. The variation in rules within states over time and between states, in addition to the vast amount of accessible data, made the CHIPs particularly available for econometric analysis. The following study seeks to establish a relationship between an optional reform measure and the CHIP program's efficacy.

Part 2. Did the creation of a joint application of LaCHIP and Medicaid have an effect on the incidence of unmet health needs among LaCHIP eligible children?

This study examines the child and family characteristics that have a significant effect on incidence of unmet pediatric healthcare needs among Louisiana’s Children’s Health Insurance Program (LaCHIP) eligible children before and after the creation of a joint application for LaCHIP and Medicaid. I hypothesized that after controlling for various demographic characteristics, the variable, YEAR, would be a significant determinant of whether or not an eligible child had an unmet health need.

Literature Review

A 2001 Government Accountability Office Report notes that “differences in Medicaid and SCHIP enrollment requirements—particularly application requirements and eligibility determination practices—can affect beneficiaries’ ability to obtain and keep coverage.” In a 2001 report to the Urban Institute, Kenney and Haley assert that streamlining re-enrollment processes for Medicaid and CHIP will be “key to enrolling children whose parents face many competing demands on their time” because information availability and that administrative barriers could be preventing the enrollment of up to 10% of eligible children nationally.⁴⁵ A later Health Affairs article suggested that the synchronization and simplification of Medicaid and SCHIP enrollment forms enabled broader outreach campaigns and better retention of children with changing income statuses. Additionally, a

⁴⁵ Genevieve Kenney and Debbie I. Chang. *The State Children’s Health Insurance Program: Successes, Shortcomings, And Challenges: Up for reauthorization in 2007, SCHIP has closed the gap in children’s coverage, but critical issues remain unresolved.* Health Affairs volume 23, number 5

2003 study in Pediatrics about the evolution of New York's Children's Health Insurance Program suggested that large changes in the characteristics of enrolled children occurred after, and partially due to, the creation of a joint application for Medicaid, Special Supplemental Food Program for Women, Infants, and Children (WIC), Prenatal Care Assistance Program (PCAP), and CHIP.⁴⁶ This research suggests that Louisiana's decision to create a joint application for Medicaid and CHIP should improve enrollment rates in the program, even among hard to reach populations.

However, the purpose of CHIP is not enrollment alone, but improved patterns of healthcare utilization.⁴⁷ Public insurance coverage is associated with increased utilization of care, even compared to private coverage, when family and child characteristics are controlled.⁴⁸ Older studies found that for otherwise uninsured low-income children, a year of public coverage increased the probability of compliance with the American Academy of Pediatrics recommendations for well-child visits by thirteen percentage points.⁴⁹ Medicaid coverage has also been shown to improve compliance with well-child visit recommendations. Low-income children covered by Medicaid are respectively 8.8 and 25.6 percentage points more likely than their privately insured and uninsured counterparts to have received a well-child visit in the previous year, indicating that enrollment in Medicaid

⁴⁶ Dick AW, Klein JD, Shone LP, Zwanzinger J, Yu H, and Szilagyi PG. (2003) *The Evolution of the State children's Health Insurance Program (SCHIP) in New York: Changing Program Features and Enrollee characteristics*. Pediatrics 112, p542.

⁴⁷ Christina M. L. Kelton, Miriam Levitt, Margaret K. Pasquale. Barriers to SCHIP enrollment: A cross-county study of the State Children's Health Insurance Program in Pennsylvania. Politics and the Life Sciences, May 2006, vol. 24, no. 1-2

⁴⁸ Thomas M. Selden and Julie L. Hudson. *Access to Care and Utilization among Children: Estimating the Effects of Public and Private*. Medical Care, Vol. 44, No. 5, Supplement: Trends in Medical Care Costs, Coverage, Use and Access: Research Findings from the Medical Expenditure Panel Survey (May, 2006), pp.119-126

⁴⁹ Salam Abdus and Thomas M. Selden. Adherence With Recommended Well-Child Visits Has Grown, But Large Gaps Persist Among Various Socioeconomic Groups. Health Affairs, 32, no.3 (2013):508-515

should reduce unmet health needs.⁵⁰ These trends make sense economically because enrollment in publicly financed health programs brings the marginal cost of obtaining healthcare almost to zero.

Major gaps in use of utilization persist based on race, region, parental education, and presence of a “medical home.”⁵¹⁵² Castro et al affirm the importance of these factors, noting that 69% of interviewed parents of CHIP enrolled children said are predisposed to obtaining healthcare for their children after individual communication with a physician and 54% said that contextual knowledge of the health system increased their propensity to seek care.⁵³ These studies reinforced my decision to include childhood demographic characteristics and presence of a medical home in my study.

Data Source

Data from the 2007 and 2011-2012 National Survey of Children’s Health (NSCH) were used. The Data Resource Center for Child and Adolescent Health is a project run by the U.S. Department of Health and Human Services, Health Resources and Service Administration, and the Maternal and Child Health Agency (MCHA). The surveys were conducted by the Centers for Disease Control and Prevention’s National Center for Health Statistics (NCHS) using State and Local Area Integrated Telephone Surveys (SLAITS). In 2007, more than 1,700 surveys were collected for each state, resulting in 91, 642 survey

⁵⁰ Dubay L, Kenney G. Health Affairs. 1. Vol. 20. 2001b. “Health Care Access and Use among Low-Income Children: Who Fares Best?” pp. 112–21.

⁵¹ A “Medical home” is a concept initially created by the American Academy of Pediatrics in 1967 to refer to the place where the medical records of a child with special health care needs are kept. It now more broadly refers to the center of the child’s medical care- often a pediatrician’s office or that of a frequently used specialist or therapist (US Department of Health and Human Services 2013).

⁵² Abdus and Shelden, “Adherence with recommended Well-Child.”

⁵³ P Valencia-Castro, A Stachnik, D Fuentes, G Gaitan, W Yang, J Smith-Gagen. 2010. *Barriers to health care among parents using children’s health insurance program*. Annals of Epidemiology Vol. 20, No. 9: 691–724

responses nationally. In 2011-12, more than 1,800 surveys were collected for each state, resulting in 95,677 individual responses nationally.

Theory and Identification

This study will be limited to SCHIP eligible children (as defined by the povSCHIP_07 and povSCHIP_11 variables in the original 2007 and 2011 data sets, which describe income relative to the Federal Poverty Level) between the ages of 3 and 17 (as defined by AGE_CHILD) who live in Louisiana. In order to find the effect of the change in CHIP enrollment structure on primary care use of CHIP eligible children, I controlled for 13 variables based on the important factors suggested by the literature (Appendix I, Table 1). My independent variable of interest was YEAR.

Methods

I included only data from the state of Louisiana for children between the ages of three and seventeen who were between 0-299% of the Federal Poverty Level. I dropped all observations with missing values in my variables of interest for each data set, and I renamed and recoded the 13 variables to ensure that the 2007 and 2011 names and codes were identical. Then, I appended the 1420 observations from the 2007 dataset to the 1400 observations in the 2011 set, resulting in a final combined data set with n=2820.

I chose to use a logistic regression because the dependent variable of interest, unmet health needs, is a dummy variable where “0” was assigned to observations with no unmet health needs and “1” was assigned to observations with one or more unmet health needs (Figure 1, Appendix B). I performed two tests to ensure that a logistic model was appropriate. The first was a link test. A link test checks for a specification error by creating variables `_hat` and `_hatsq` that could have predictive power over the dependent variable. In

my link test, `_hatsq` was not significant, so I failed to reject the null hypothesis that my model was specified correctly (Figure 2, Appendix B). I then performed a Hosmer-Lemeshow goodness of fit test to check if the predicted frequency of unmet health needs matched the observed frequency. The test resulted in a p-value of 0.2916, so I failed to reject the null hypothesis that the model fit the data appropriately (Figure 3, Appendix B). The assurances provided by these two tests and the consistency between my variable choices and those of studies in my literature review suggested that omitted variable bias was not a problem in my regression.

I then checked my model for multicollinearity by examining a correlation matrix between all of the variables in the logit regression (Figure 4, Appendix B). The highest level of correlation (0.5808) was between the variable `INSURANCE_TYPE` and `EXPENSE_INSURANCE`. Logically, this makes sense because out of pocket medical costs are determined by the insurance variable. I decided to do nothing to fix this collinearity problem for two reasons. The first was that correlation between the two variables, though higher than any other level of correlation on the matrix, was still relatively low. The second was that I am interested in the policy implications of any relationships between out of pocket healthcare expenditures and insurance type on unmet healthcare needs, and the inclusion of those variables is therefore necessary.

I did not anticipate that serial correlation would be a problem in my data because my data is cross-sectional, not time series. The survey data show a snapshot of the unmet healthcare needs for 2,820 different, randomly selected individuals, approximately half of which were interviewed before the creation of a joint application for Medicaid and CHIP and about half of which were interviewed after the joint application had been

implemented. I do not suspect that the unmet health needs of one observation could be affected by those of the observation before it.

I examined residual plots and summary statistics of the residuals to check for heteroskedasticity because I could not use either the white or the park test with my logistic regression. The residuals for all of the observations with unmet health needs were positive, while the residuals for observations without unmet health needs were clustered close to zero. I did not see a way to redefine the variables to account for those differences, so I decided to use robust standard errors in my regression.

Analysis

The primary independent variable of interest, YEAR, was not significant in my logistic regression with robust standard errors. The confidence interval for the odds ratio was fairly large, spanning from 0.78 to 1.66⁵⁴. However, though the year, and therefore the creation of the joint application for SCHIP and Medicaid did not appear to matter, the other significant variables do offer interesting insight into the population of children struggling with unmet health needs.

Considering variables with p-values less than 0.1, the child's primary language, family structure, health status, insurance status, parental employment history, level of out of pocket health care expenditures, and presence of a medical home all affect their odds of having an unmet health need. The odds are higher for children of single mothers than for children of two parent families. Interestingly, children whose mothers are high school graduates have higher odds of having an unmet health need than children whose mothers

⁵⁴ Note: when using odds ratios, the inclusion of 1 indicates that the impact of the variable is not statistically significantly different from 0 because odds ratios are simply the exponentiated coefficients of the logit regression and $e^0=1$)

did not graduate high school. This could be explained by the Medicaid effect, whereby children whose mothers did not graduate from high school are more likely to consistently qualify for a the variety of social services that Louisiana's DHH uses to identify children that should also be enrolled in LaCHIP and Medicaid than children whose mother's graduated from high school but progressed no further. Children whose families had at least one member of their household work 50 of the last 52 weeks (scored 1 for EMPLOYMENT_HH), also had lower odds of having an unmet health need than children whose families had not had a member of the household as consistently employed. Uninsured children had much higher odds than insured children of experiencing an unmet health need, as did the children of single mothers compared to children with two parent family structures. Children with "good" overall health (HEALTH_CHILD=2) and children with "fair/poor" overall health (HEALTH_CHILD=3) all had higher odds of experiencing an unmet health need than children with "excellent/very good" health. Those odds were higher for children with "fair/poor" overall health. This could be expected because as the complexity of a child's healthcare needs increase, the probability that a needed treatment will be prohibitively expensive or geographically inaccessible may also increase, particularly since all of the children included in this study. Strangely, those insured children with no out of pocket healthcare expenses (EXPENSE_INSURANCE=0) and those who "never or sometimes" pay out of pocket for health care (EXPENSE_INSURANCE=1) have high and significant odds of experiencing an unmet healthcare need. I do not have a theory to explain these observations. Moral hazard and the literature surrounding health service usage for Medicaid enrollees suggests that those who have the lowest marginal costs consume the most. This data suggests that those with the lowest marginal costs

access the least health care. Additionally, the odds of having an unmet health need are lower for non-English language speakers than for English language speakers. This result is difficult to explain and may be the result of an omitted variable explaining if the child lived in a rural or urban setting. Children in urban settings, like Louisiana's larger port cities, may be more likely to both primarily speak a language other than English and have better access to health service facilities than children in rural Louisiana. Finally, as expected, children with a medical home have lower odds of experiencing an unmet health need than those without a medical home.

The unexpected results from the EXPENSE_INSURANCE and PRI_LANG variables concerned me, so I attempted to run the logistic regression as a linear probability model (LPM) (Figure 6, Appendix B). I checked the VIF values (Figure 7, Appendix B) and performed a White test (Figure 8, Appendix B) on the LPM regression. The VIF values, as expected, showed no problems with collinearity. The White test, with a chi-squared value of (5.2×10^{-16}) with 207 degrees of freedom caused me to reject the null hypothesis of homoscedasticity. I had suspected that heteroskedasticity would be a problem in the model, because it had been a problem with the logit model, and therefore continued my use of robust standard errors. The signs of the coefficients of the LPM model generally supported the conclusions from the logit model, and both models had matching significant variables.

Conclusion

My hypothesis was not supported by the data indicating that the creation of the joint application did not affect incidence of unmet healthcare needs among Louisiana's LaCHIP and Medicaid eligible children. However, the data did provide information on the factors,

like family structure, overall health, insurance coverage, and employment that do appear to affect the rates of unmet healthcare needs. The data on out of pocket health care expenditures warrant further study and analysis. The successful implementation of the Patient Protection and Affordable Care Act may have a profound impact on pediatric unmet health needs through the individual and employer mandates for insurance coverage, but I expect that factors like family structure and a child's overall health would be most successfully addressed by community or hospital level policy changes rather than federal or state level provisions. Though this data did not support the conclusion that the creation of a joint application for Medicaid and LaCHIP had significant impact on pediatric unmet health needs, I suspect it may have positively affected perception of the SCHIP and Medicaid enrollment processes and potentially had some effect on administrative costs for Louisiana's Department of Health and Hospitals. Those effects were not measured in by this data, but they may be worth exploring in subsequent research.

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