

ARTICLE

Impact of health plan reforms in Washington on employment decisions

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Abstract

The State of Washington, as part of a State Innovation Model (SIM) grant, is changing the payment model within state employee health insurance plans. The system is moving away from traditional fee-for-service reimbursement to value-based payment, through insurance design (the creation of accountable care network insurance products) and bundled payment strategies. New plans were rolled out January 2016 (enrollment occurred in late 2015), with the stated goal of getting 80% of state employees covered by plans that contain value-based purchasing within the next 5 years. The goal of payment reform is to improve member experience, member health, and cut costs. However, changing health insurance during employment can directly and indirectly change labor market outcomes. Decreasing costs of insurance could lead people to remain in the state-employment sector longer. However, it could also influence retirement timing, through changing the relative costs of insurance and through improving health.

This paper examines who switches to value-based insurance, where the insurance explicitly decreases premiums without changing out-of-pocket costs. We find that the peak age for switching insurance plans is 35–45, even among the subsample of individuals who would not need to change their usual sources of care. Second, we look at the labor market activity – both leaving the state-employee sector and retiring from state-employment – and find that younger workers with value-based insurance plans are less likely to leave state employment. Further, we find evidence of value-based insurance, available at a reduced cost to both employees and retirees, leads to a shifting downward in the distribution of retirement age. While these findings support the existence of both the price and income effects, the effect sizes are rather small.

Keywords: Health insurance; retirement; value-based

JEL Codes: I13; J26; J33; J45

1. Introduction

Historically, most health insurance plans have been agnostic as to the value of care received, and reimburse based on volume, not value. The truth is that the value of health care can vary a lot. Value-based health insurance, or insurance that sets up incentives based on value of care instead of volume of care delivered, catalyzes improvements in health care information technology, care processes, and care integration (Fisher *et al.*, 2012). Recent work indicates that value-based insurance is associated with trends that are expected to lead to improved population health, such as reductions in inpatient and emergency department utilization, and improvements in preventive care and chronic disease management (Kaufman *et al.*, 2017; McClellan *et al.*, 2017). The long-term impacts are yet unknown, given the relatively recent introduction of value-based insurance design.

Despite the uncertainty in long-term outcomes, policies continue to encourage the spread of value-based insurance design. The Patient Protection and Affordable Care Act (ACA) established the Center for Medicare and Medicaid Innovation (CMMI), which started the State Innovation Model (SIM)

program in 2013 (Shrank, 2013). The SIM program aims to drive the development of effective value-based insurance designs and has set a target for states awarded SIM grants to shift 80% of care from fee-for-service or volume-based to value-based payment contracts (Rajkumar *et al.*, 2014).

In 2014, Washington (WA) state received a SIM Round 2 Model Test Award to test reforms in health care payment and service delivery including value-based insurance programs (Centers for Medicare and Medicaid Services, 2014). One of the five major initiatives¹ developed under the WA State SIM grant is the creation of two value-based accountable care insurance programs available to public employees, which launched in 2016. The initial roll-out included five counties within the state, encompassing the Seattle and Vancouver regions. In 2017, four more counties were included and expanded the geographic area to include western WA (Spokane area). This particular reform lowers out of pocket costs, through lower premiums, without increasing individual financial risk in the case of bad health outcomes through stable co-payments and co-insurance rates. Premiums charged for single individuals decreased by 30%, without increasing co-payments or out-of-pocket maximums.

It is widely accepted that access to post-retirement insurance influences retirement rates (Rogowski and Karoly, 2000; Gruber and Madrian, 2001; Blau and Gilleskie, 2006, 2008; Madrian, 2005; Boyle and Lahey, 2010; Nyce *et al.*, 2013; Fitzpatrick, 2014; Shoven and Slavov, 2014). Much less is known about the relationship of insurance offered during employment, either specifically related to value-based insurance or more generally about the level of premiums paid, and retirement decisions. We know of only one study that examines the role of health insurance premiums in the retirement decision, which finds that increases in post-retirement premiums delays retirement (Johnson *et al.*, 2003).

This paper examines the opposite phenomenon, a decrease in employee-paid premiums during employment, and the subsequent relationship to labor market behavior. Decreasing the relative premiums paid during employment increases the relative costs of leaving the state-employment sector, potentially delaying or reducing the number of people leaving state-employment. However, it also acts as an exogenous increase in the budget constraint in the short-term, allowing for increased savings, which could hasten leaving the state-employment rolls. Since non-Medicare retirees can maintain the 30% premium reduction in retirement, we hypothesize this policy will lead to increased retirements that keep people on the state-employee insurance rolls. Thirdly, in the long-run, if value-based insurance delivers better health to their enrollees (Choudhry *et al.*, 2010, 2011; Gibson *et al.*, 2011; Wertz *et al.*, 2012), this could delay retirement by allowing individuals to be healthy enough to work longer. This uncertainty in the predicted response warrants empirical investigation in order to both gauge the sign and the magnitude of these labor market effects.

Using administrative data from state employees in WA, we test the impact of the introduction of a value-based insurance reform on retirement decisions through the decrease of premiums and no change in financial risk of health shocks borne by the individual. We first study who is likely to take up the new insurance product. We find that the peak switching age is 34–45, and state employees close to the retirement ages are less likely to switch insurance and sign up for the new value-based insurance programs, even after accounting for whether the network of doctors individuals have used in the past is in the accountable care network. Second, we examine two labor market outcomes; retiring and remaining in the state-employee health insurance plan and leaving the state-employee health insurance rolls altogether. We find that younger workers who signed up for the value-based insurance product are less likely to leave state employment. Further we find that value-based insurance available to both workers and retirees leads to a downward shift in the age of retirement. These findings are consistent with the financial incentives around employment embedded in this health insurance reform.

¹The other four initiatives are: supporting accountable communities of health (ACH), shaping the practice transformation support hub, and 2 payment reform models within the Medicaid program. While both the ACHs and the practice transformation hub could theoretically also impact state employees, we think this is unlikely having a large effect during our study period. The ACHs focus, while not exclusive, is on Medicaid MCO providers. The Practice transformation hub portal launched in January 2017.

2. Background and data

2.1 WA state health insurance

2.1.1 Pre-reform

Prior to 2016, state workers and retirees could get health insurance through Group Health, Kaiser Permanente, and the Uniform Medical Plan (UMP). All insurance companies had four products – a high deductible plan, a ‘classic’ plan, and two variants for ‘smart-health’, where individuals could do more screening and more reporting back to the insurance company about activities and health behaviors in exchange for a premium deduction. Kaiser (concentrated in the WA suburbs of Portland, Oregon) and Group Health (concentrated in Seattle-King County and Spokane, WA) run relatively closed health insurance and provider systems, and accounted for 34% of the active state-employee enrollment in 2015. UMP offered traditional, fee for service health insurance coverage, and enrolled 66% of active employees in 2015 (HCA 2015). While UMP had a preferred provider network, which led to lower co-insurance rates and decreased paperwork for patients, the preferred provider network was very inclusive. As the primary insurance provider within the state with a mandate to have an adequate network of providers in all counties, most health care providers in the state were within the UMP preferred provider network.

2.1.2 2016 reforms

In 2016 (enrollment in Fall 2015), the state introduced UMP-Plus, a new value-based insurance plan that has two networks. UMP-Plus is a self-insured health plan, administered by Regence BlueShield and Washington State Rx Services. There are two networks of providers – one was offered by the University of Washington Medicine Accountable Care Network (UW) and the other by Puget Sound High Value Network (PSHVN). Employees and retirees that are not enrolled in Medicare who live in the 5-county Puget Sound region for the 2016 calendar year (King, Kitsap, Pierce, Snohomish, and Thurston counties) were the first eligible.

The new plan promised lower premiums, lower deductibles, coordinated provider networks, and the same insurance coverage as provided in UMP Classic. See [Table 1](#) for a benefit and cost comparison between UMP Plus and UMP Classic. While this combination of lower premiums and same coverage typically means higher co-payments for services delivered, the copayments were identical between UMP Classic and UMP Plan plans *if* one used the network providers within the UMP Plan (HCA 2016a). The providers were also promised to collaborate to reduce unnecessary care, they were to be committed to using best practices and research-based medicine, and to work with you to make the best decisions for your own health. This was touted as an especially valuable benefit for members who have multiple providers (HCA 2016b).

While the insurance coverage is similar and out-of-pocket costs are lower, the one major change from a consumer-perspective is the creation of a network. It is worth noting that, due to the mandate to have adequate coverage for all state employees, UMP Classic, even the Preferred Provider Network, offers tens coverage of tens of thousands of providers, and nearly every provider within the state. Thus any network created would be narrower, even if not that narrow objectively. UW Medicine claims to be the most comprehensive health care network in the Puget Sound region, offering over 1,000 primary care providers, 1,000 clinics, 5,000 specialists, 33 urgent care clinics, 15 hospitals, and 15 emergency departments in 2016 (<https://www.hca.wa.gov/assets/ump/ump-plus-uwmedacn-coc-2016.pdf>), and expanded in 2017. It includes specialized hospitals like Seattle Children’s, Mary Bridge Children’s hospital, and the Seattle Cancer Care Alliance. PSHVN is slightly smaller, and operates in some different areas, although still had a network with over 1,000 primary care providers and 5,500 specialists in 2017.

While the networks had the possibility of being unique, there is overlap in providers between the networks. There is one large provider within both networks who operates in King, Pierce, and Kitsap counties, and both networks contracted with Seattle Children’s hospital.

Table 1. Comparison of UMP-Plus and UMP-Classic

	UMP PLUS	UMP CLASSIC	% CHANGE
PREMIUMS: STATE AND HIGHER EDUCATION EMPLOYEES			
Employee only	59	84	30
Employee + Spouse	128	178	28
Employee + Children	103	147	30
Full family	172	241	29
PREMIUMS: NON-MEDICARE RETIREES			
Subscriber only	552.4	576.78	4
subscriber + spouse	1,098.77	1,147.53	4
Subscriber + children	962.18	1,004.84	4
Full family	1,508.55	1,575.59	4
DEDUCTIBLES			
Medical (per person, capped at 3)	125	250	50
Prescription Drugs	0	100 for Tier 2 or 3	0-100
MEDICAL OOP LIMIT			
	2,000 per member	2,000 per member	none
	4,000 family	4,000 family	
PRESCRIPTION DRUG OOP LIMIT			
	2,000 per member	2,000 per member	none

One way to gauge the narrowness of the network is to examine how many people in UMP Classic in 2015 were primarily seeing doctors that eventually became affiliated with UMP-Plus. Our calculations suggest that out of 48,188 state employees living in the 5-county region in 2015 eligible to switch, almost 20% were seeing doctors that were later affiliated with one of the UMP-Plus networks. This is similar for the 2017 expansion in the 4-county region, with almost 20% of state employees already seeing doctors that were later affiliated with a network.

While these reforms were enacted due to the state winning additional funding from the CMMI as part of the State Innovation Model, it is important to note that no SIM funding went to subsidizing premiums for state employees. In addition, no additional revenues were raised – the funding rate is set by the legislature and did not change around this time, and the employer contribution to premiums is set by collective bargaining agreement. In 2017–2019, it was set to be 85% of the total weighted average of the projected health care premiums across all plans (HCA 2018). Negotiated prices and the ACNs accepting both upside and downside financial risk to maintain or improve their quality metrics while decreasing costs of treating their patients is the long-term goal in keeping these contracts and ACN plans financially sustained. The lower premiums and out-of-pocket costs could be offered in the first year because the Health Care Authority ‘spent’ the anticipated savings developing a higher value insurance product. To ensure the savings were captured, the provider networks had to accept the downside risk – if they did not achieve the savings they would have to pay the deficit.

2.1.3 Enrollment

As of January 2016, after the first open enrollment offering these plans, 10,571 beneficiaries, or 3% of the non-Medicare beneficiaries, we enrolled in a UMP-Plus plan. Enrollment has been increasing since. In 2017, the UMP-Plus extended its geographic reach to four more counties: Skagit (only UW-ACN); Spokane (only PSHVN); Yakima (only PSHVN); and Grays Harbor (both). There are plans to continue expansion in 2019.

There were five primary goals for this health insurance reform. (1) Improve health of state employees. (2) Improve member experience. (3) Improve quality of care. (4) Reduce costs trends over the life of the contract. (4) Decrease inappropriate utilization. However, changes in one of the key benefit programs could also change the employment decision.

2.1.4 Other insurance trends in the state of WA

Health insurance markets during these years was far from stagnant. Many major provisions of the Affordable Care Act started in January 2014 – the individual mandate, the health insurance exchanges (WA state ran its own exchange), federal subsidies, removal of pre-existing condition clauses, and

Medicaid expansion. However, WA was one of the five states that was using a CMS waiver to allow for early Medicaid expansion – as of 2011, Medicaid was available to residents of WA up to 133% of the poverty line – so 2014 was less of a change for Medicaid-eligible population than in other states. When examining the trends of health insurance coverage (Figure 1), they are actually fairly stable between 2014 and 2016 in WA state, despite the changes in the overall market. The biggest changes during this time period are the decrease in the number of uninsured and an increase in the non-group market. Employment-based health insurance hovers around 50% of the market during this entire time, or almost 3,600,000 people in 2016 (Kaiser Family Foundation, 2016). The public employee market enrolled in UMP, studied here, is roughly 2.6% of the total employer-based market in the state.

3. Data

We use longitudinal administrative data for UMP-covered employees, containing information from January 2013 to December 2017, at the per-member-per-month level. We limit the sample to examine individuals under the age of 65 who are not enrolled in Medicare, since Medicare enrollees were not eligible for UMP-Plus. We also limit analysis to individuals age 20 and above. With these age-based restrictions, our data cover approximately 50,000 state employees and retirees over the 5-year period.

The dataset contains limited personal information but fairly comprehensive information about health and health insurance. We have demographic information including age, gender, and the county in which the beneficiary lives. We have some information about employment and the sector in which the individual works through the reason of health insurance eligibility (active state employee, commodity commission², K-12 employment, post-secondary education employment, leave without pay, COBRA, and retiree benefits). We have individual health information, which includes self-reported smoking status and claims-based indicators for a previous diagnosis in any of 31 categories of disease/illness used for risk adjustment (see Appendix Table A1 for a full list of these conditions).

The database provides fairly comprehensive information about the insurance contract. We know who is insured under the plan (Employee only, employee and child, employee plus spouse, employee, and family), and the type of insurance plan (UMP Classic, UMP Plus (UW or PSHVN), UMP consumer-driven health plan (CDHP)). We also know whether the doctors they primarily saw in a year were enrolled, either eventually enrolled for years 2014–2015, or concurrently for years 2016–2017, in either UMP-Plus plan.

We use the reason for health insurance eligibility and the longitudinal nature of the database to define two labor market behaviors of interest. First, one could maintain insurance through the state employee pool but retire from state employment. For most employees, this could be done after 10 years of state employment, and is separate from eligibility for retirement benefits. This would be measured in the administrative data by changing the reason for eligibility for health insurance, and converting from active state-employee to retiree. We define retirement if the eligibility status changes to retiree benefits for at least 3 months, to minimize the effect of administrative errors in the data. If they retire and remain uncovered by Medicare, they are eligible for UMP-Plus and keep the 30% discount on premiums.

Second, they could leave the state-employee health insurance rolls altogether. This could be due to retirement from the state-sector, switching employment-sectors, or leaving the labor force. We define leaving the state-employee health insurance sector if the eligibility status changes to COBRA or the individual leaves the dataset for at least 6 consecutive months, in order to pick up sustained changes in employment and minimize the effect of any administrative errors in the dataset. Leaving the state-employment rolls altogether does not maintain their health insurance premium discount.

²Washington state has 21 agricultural commodity commissions, who are engaged primarily in marketing and/or research related to a specific product, i.e. apple commission, red raspberry commission, Puget sound salmon commission, among others.

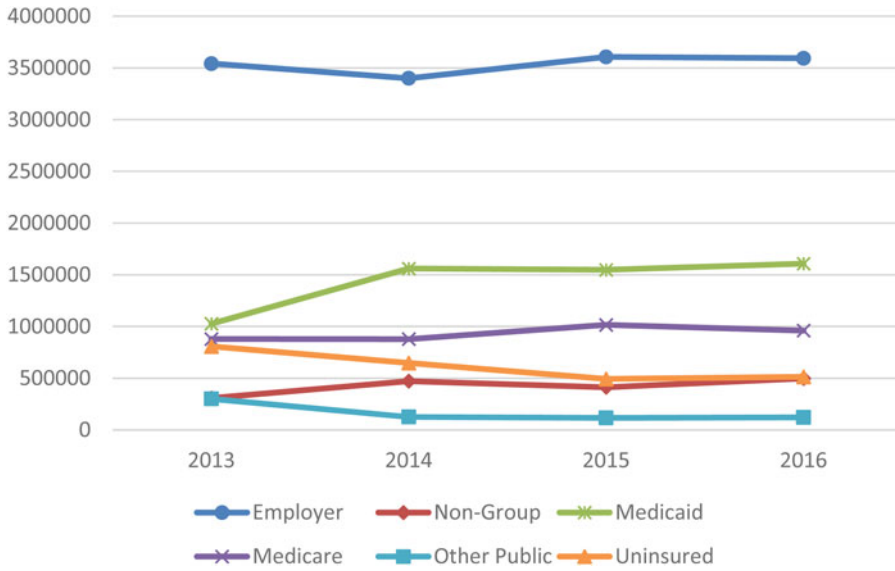


Figure 1. Health Insurance Trends: Washington State.

4. Methodology

4.1 Who signs up for UMP-Plus?

First we examine the correlation between individual characteristics and their propensity to sign up for a UMP-Plus plan. We select the sample of individuals who are eligible to sign up for UMP-Plus – active employees and retirees under the age of 65, non-Medicare eligible, who live in one of the treated counties during the roll-out period. We estimate the following regression via GLM:

$$UMP - Plus_{i,t+1} = \beta_1 + \beta_2 X_{i,t} + \varepsilon_{it} \tag{1}$$

where $UMP - Plus_{i,t+1}$ is a 0/1 variable indicating whether the individual signed up for a UMP-Plus contract in time $t + 1$ (2016 or 2017). $X_{i,t}$ are the covariates measured in the baseline year t . These covariates include beneficiary demographics (age in 5-year age bands, gender, county of residence, 31 aggregated condition categories (ACC) based on previous diagnoses (Cid *et al.*, 2016)), insurance contract characteristics in the baseline year (Contract Type (individual, spouse, child); and eligibility type (active employee, K-12 coverage, commodity commission coverage, cobra coverage, retiree coverage, other coverage).

4.2 Labor market behavior

Second we examine the correlation between labor market behavior and UMP-Plus enrollment using the following OLS regression model:

$$L_{i,c,t} = \beta_1 + \beta_2 X_{i,t} + \beta_3 HI_t + C_c + m_t + y_t + \varepsilon_{it} \tag{2}$$

where L is an indicator for leaving the active state-employee insurance rolls, either through retirement or leaving as defined above. HI is a vector of health insurance plans, UMP-Classic, UMP CDHP, and UMP-Plus. C , M , and Y are county, month, and year fixed effects, respectively. X is the vector of covariates as defined above.

We also test for heterogeneity in the relationship between health insurance and labor market behavior by age by including interaction terms. Finally, we test whether there are different relationships

Table 2. Descriptive Statistics: Switching to UMP-Plus Sample

	Live in 5-County area, 2015		Live in 5-County area, 2016		Live in 4-County area, 2016	
	Join UMP-Plus in 2016		Join UMP-Plus in 2017		Join UMP-Plus in 2017	
	N	Y	N	Y	N	Y
Member enrolled in UMP-Plus in First Year Available						
N	30,935	17,253	31,157	18,885	5,914	654
Enrollment rate		35.8%		37.7%		10.0%
Age(years)						
20–25	3%	2%	2%	3%	2%	1%
25–30	7.4%	6.9%	7.8%	7.9%	5.8%	5.4%
30–35	10.6%	9.5%	11.1%	10.7%	7.9%	7.6%
35–40	11.2%	10.7%	11.4%	11.1%	10.1%	11.5%
40–45	12.6%	12.5%	12.4%	12.3%	11.5%	11.0%
45–50	13.6%	13.1%	13.5%	13.0%	13.1%	13.1%
50–55	14.5%	15.0%	14.2%	14.2%	14.8%	13.9%
55–60	15.6%	17.1%	15.4%	16.0%	18.1%	16.7%
60–65	11.8%	12.7%	11.7%	12.3%	16.4%	19.4%
Female	57.1%	64.0%	56.9%	63.7%	55.5%	56.9%
State employment Sector						
Active State Employee	90.2%	91.6%	90.0%	92.2%	75.3%	71.7%
Retired	3.3%	3.4%	3.1%	2.7%	5.9%	8.3%
K-12	0.6%	0.4%	0.6%	0.4%	3.7%	7.0%
PS	5.4%	4.4%	5.6%	4.3%	14.0%	11.3%
Commodity Commission	0.04%	0.02%	0.03%	0.0%	0.2%	0.5%
Other	0.4%	0.3%	0.6%	0.4%	0.8%	1.2%
Self-Reported Smoker	15.2%	14.0%	14.2%	12.4%	19.5%	19.3%
Health Insurance Information						
Uniform Medical Plan Classic	91.8%	100.0%	82.8%	17.0%	93.0%	94.8%
Uniform Medical Plan CDHP	8.2%	0.0%	8.5%	1.9%	7.0%	5.2%
UMP-Plus			8.8%	81.1%		
Contract type						
Employee Only	44.6%	43.3%	45.6%	44.5%	39.9%	42.2%
Employee and Child	15.5%	16.0%	15.6%	15.9%	16.0%	19.9%
Employee and Family	23.5%	23.4%	22.8%	22.8%	22.9%	20.6%
Employee and Spouse	15.8%	16.9%	15.4%	16.3%	20.4%	16.1%
Unknown	0.5%	0.4%	0.6%	0.5%	0.8%	1.2%
Seeing doctors in UMP-Plus network	10%	32%	11%	35%	13%	77%

among those who, prior to the intervention, were primarily seeing doctors who joined an ACN during the post-period. For the retirement outcome, we limit the sample to those ages 45–65, since we observe no retirements prior to age 45 in the data.

To estimate the effect that UMP-Plus has on employment behavior on the entire population, we capitalize on the geographic-specific implementation design and use a difference-in-difference framework to evaluate the effect of health insurance reform on employment. We estimate the following regression:

$$R_{i,c,t} = \beta_1 + \beta_2 X_{i,t} + \beta_3 5C_t + \beta_4 Post2016_t + \beta_5 5C_t \times Post2016_t + \beta_6 4C_t + \beta_7 Post2017_t + \beta_8 4C_t \times Post2017_t + y_t + \varepsilon_{it} \tag{3}$$

where 5C is an indicator variable for living in the five treated counties, Post2016 is an indicator for 2016 or 2017, and the interaction term identifies the difference in labor market behavior in the 5-county region after the introduction of UMP-Plus. Likewise, 4C is an indicator variable for living in the later-treated four counties, Post2017 is an indicator for 2017 after intervention, and the interaction term identifies the difference in labor market behavior in the 4-county region after the introduction of UMP-Plus. Finally, we also check for heterogeneity of the effect by age by including two

Table 3. GLM Results: Switching to UMP-Plus

PARAMETER	ESTIMATE	STANDARD ERROR	T VALUE	PR > T
INTERCEPT	0.1706	0.0101	16.83	<0.0001
AGE [60–65: OMITTED CATEGORY]				
20–25	−0.0149	0.0186	−0.80	0.4220
25–30	0.0026	0.0122	0.21	0.8333
30–35	0.0106	0.0104	1.02	0.3075
35–40	0.0268	0.0098	2.74	0.0061
40–45	0.0266	0.0092	2.88	0.0040
45–50	0.0150	0.0088	1.70	0.0891
50–55	0.0130	0.0084	1.56	0.1187
55–60	0.0096	0.0078	1.23	0.2190
SELF-REPORTED SMOKER	−0.0160	0.0046	−3.51	0.0004
ELIGIBILITY TYPE [ACTIVE EMPLOYEE]				
COMMODITY COMMISSION	−0.1590	0.0742	−2.14	0.0321
K-12	−0.0257	0.0175	−1.47	0.1412
OTH LWOP	0.0218	0.0664	0.33	0.7432
POST-SECONDARY	−0.0127	0.0078	−1.63	0.1033
RETIRED	−0.0111	0.0118	−0.94	0.3462
FEMALE	0.0203	0.0046	4.39	<0.0001
CONTRACT TYPE [EMPLOYEE ONLY]				
EMPLOYEE AND CHILD	0.0024	0.0062	0.39	0.6974
EMPLOYEE AND FAMILY	0.0148	0.0057	2.58	0.0100
EMPLOYEE AND SPOUSE	0.0023	0.0062	0.37	0.7132
COUNTY [KING]				
GRAYS HARBOR	−0.2491	0.0160	−15.59	<0.0001
KITSAP	−0.2230	0.0123	−18.15	<0.0001
PIERCE	−0.0634	0.0072	−8.85	<0.0001
SKAGIT	−0.2723	0.0208	−13.10	<0.0001
SNOHOMISH	−0.1011	0.0082	−12.30	<0.0001
SPOKANE	−0.3255	0.0122	−26.63	<0.0001
THURSTON	0.1178	0.0062	19.13	<0.0001
YAKIMA	0.0718	0.0196	3.67	0.0002
N	116,861			

Note: Sample includes state employees between the ages of 20 and 65 residing in King, Pierce, Snohomish, Thurston, and Kitsap Counties in 2015 or 2016 and living in Yakima, Spokane, Skagit, or Grays Harbor in 2016, and thus geographically eligible to switch insurance providers. Regression also includes dummy variables for the 31 ACC conditions, as well as year indicators.

additional interaction terms with age and the post-intervention and county interaction terms. All standard errors are clustered at the county-level.

5. Results

5.1 Who switches to value-based health insurance

Table 2 provides the descriptive statistics for the subsample of state employees and retirees who are eligible to switch to a UMP-Plus contract in 2016 or 2017. The first columns report the characteristics for people in 2015 who were first eligible to sign up for UMP-Plus in 2016, the second set of columns reports the characteristics for people living in the original 5-county region and eligible to sign up in 2017, and the third set of columns presents the 2016 characteristics for those in the 4-county region who are first eligible to sign up for UMP-Plus in 2017.

We find the initial enrollment rate to be over one-third of eligible workers and retirees in 2016. Most of these individuals were active employees (92%), most were female (64%) and all were enrolled in the UMP Classic (100%) plan prior to enrolling in UMP-Plus. Otherwise the descriptive characteristics look very similar to those who were eligible but did not sign up for UMP-Plus in 2016.

In year 2, over 80% of employees and retirees who signed up for UMP-Plus in 2016 stayed in UMP-Plus in 2017, while also gaining more traction within the UMP Classic insurance group. Individuals who were insured with the consumer-directed high deductible plan (CDHP) were unlikely

Table 4. Descriptive statistics: retirement sample

		2013–2015		2016–2017	
		Not	Retire	Not	Retire
People (N)		144,578	1,944	101,956	975
Retire			1.3%		0.9%
Age(years)					
	40–45	8%		9%	
	45–50	23%	1%	24%	1%
	50–55	26%	5%	25%	5%
	55–60	27%	26%	26%	26%
	60–65	16%	68%	17%	68%
Female		57%	61%	57%	62%
State employment Sector					
	Active Worker	86%	84%	84%	71%
	Commodity	0%	0%	0%	0%
	K-12	2%	3%	3%	3%
	Post-Secondary	11%	8%	12%	7%
	Other	0%	6%	1%	18%
Health					
	Self-reported Smoker	18%	21%	16%	15%
Health Insurance Information					
	UMP Plus			25%	26%
	Uniform Medical Plan	95%	97%	69%	69%
	Uniform Medical Plan CDHP	5%	3%	6%	4%
Coverage					
	Employee only	41%	38%	40%	31%
	Employee and Child	14%	4%	15%	4%
	Employee and Family	23%	7%	23%	7%
	Employee and Spouse	21%	47%	20%	41%
	Unknown	0%	4%	1%	17%

Notes: Sample includes UMP-insured state-employees who are between the ages of 40 and 65 and not enrolled in Medicare.

to switch to UMP-Plus coverage within the first 2 years of the roll-out in the 5-county region. Like in 2016, employees and retirees who joined UMP-Plus in 2017 were more likely to be female, less likely to be a self-reported smoker, more likely to be covering the employee and spouse, and more likely to be an active state employee.

The enrollment rate within the 2017 4-county expansion area was much lower, 10%, in the first year. There are geographic differences in the type of employees eligible for UMP-Plus in this new geographic region, with an increase in employees working in education and already retired, which is not surprising given that Olympia, the state capital, was covered in the first expansion. The descriptive statistics suggest that individuals who signed up for UMP-Plus from the 4-county region were more likely to be retired, K-12 teachers, covered under UMP-Classic, and insuring themselves or themselves and a child, compared to similarly eligible individuals who did not sign up for UMP-Plus. Not surprisingly, individuals who were already seeing doctors that were in a UMP-Plus network were more likely to sign up for UMP-Plus, but this is of particular note with the 2017 expansion area.

Table 3 presents the regression results where we examine what covariates are correlated with signing up for UMP-Plus. Ages 60–65, the reference group, and age 20–25, are the least likely to sign up for UMP-Plus, even conditioning on their health as measured by the risk categories and self-assessed smoking status. Peak age for switching are ages 35–45. Smokers are less likely to switch to UMP-Plus than non-smokers (reference). We do not find much difference in enrollment rates based on how one earns eligibility to health insurance; those who are on the commodity commissions are less likely than everyone else to switch to UMP-Plus, but that is a relatively small group. Interestingly, those insuring both the employee and their families are the most likely to switch to UMP-Plus, followed by those insuring just the employee (reference group). Residents of King

Table 5. Retire from state-employment results

PANEL A: REDUCED FORM	FULL SAMPLE			WITH AGE INTERACTIONS		
	Coef	Std. Error	Pr > t	Coef	Std. Error	Pr > t
HEALTH PLAN [UMP CLASSIC]						
UMP PLUS	-0.0000415	0.000127	0.7445	-0.000898	0.000246	0.0003
UNIFORM MEDICAL PLAN CDHP	-0.0000014	0.000147	0.9922	-0.000784	0.000432	0.0697
UMP PLUS × AGE 40–45				0.001065	0.000525	0.0425
UMP PLUS × AGE 45–50				0.001095	0.000310	0.0004
UMP PLUS × AGE 50–55				0.001203	0.000302	<0.0001
UMP PLUS × AGE 55–60				0.000853	0.000297	0.0041
PANEL B: DIFFERENCE IN DIFFERENCE ESTIMATES						
5-COUNTY	-0.00130	0.00022	<0.0001	-0.00128	0.00022	<0.0001
POST 2016 REFORM	-0.00062	0.00012	<0.0001	-0.00063	0.00012	<0.0001
5-COUNTY × POST 2016 REFORM	-0.00020	0.00013	0.1298			
4-COUNTY	-0.00080	0.00031	0.0099	-0.00080	0.00031	0.0105
POST 2017 REFORM	-0.00027	0.00010	0.0068	-0.00026	0.00010	0.0082
4-COUNTY × POST 2017 REFORM	-0.00010	0.00024	0.6594			
5-COUNTY × POST 2016 × AGE 40–45				0.00035	0.00035	0.3172
5-COUNTY × POST 2016 × AGE 45–50				0.00037	0.00018	0.0420
5-COUNTY × POST 2016 × AGE 50–55				0.00035	0.00017	0.0473
5-COUNTY × POST 2016 × AGE 55–60				-0.00016	0.00017	0.3427
5-COUNTY × POST 2016 × AGE 60–65				-0.00195	0.00020	<0.0001
4-COUNTY × POST 2017 × AGE 40–45				0.00064	0.00096	0.5056
4-COUNTY × POST 2017 × AGE 45–50				0.00060	0.00042	0.1566
4-COUNTY × POST 2017 × AGE 50–55				0.00039	0.00040	0.3366
4-COUNTY × POST 2017 × AGE 55–60				0.00046	0.00040	0.2529
4-COUNTY × POST 2017 × AGE 60–65				-0.00261	0.00035	0.3172
N (PERSON-MONTHS)	1,354,123					

Notes: Sample includes UMP-insured state-employees who are between the ages of 40 and 65 and not enrolled in Medicare. Other covariates included in the model include year, county of residence, 31 aggregated condition categories (ACC) based on previous diagnoses, insurance contract characteristics in the baseline year (Contract Type (individual, spouse, child); and eligibility type (active employee, K-12 coverage, commodity commission coverage, cobra coverage, retiree coverage, other coverage).

(reference group), Thurston, and Yakima Counties are most likely to sign up for UMP-Plus. This could be due to network density in these densely populated areas, or due to concentrated marketing efforts in these large urban areas and large employers.

5.2 Impact on retirement

Table 4 presents the descriptive statistics of the sample we use to estimate the impact on retirement, state employees throughout the state, age 40 and above. We see low retirement rates before the age of 65, of roughly 1%. Observed retirements are highly skewed in the age distribution, with over 70% occurring between 60 and 65, and almost all of them occurring age 55 and older. Much like the previous sample, most are active state workers, and predominantly female. Consistent with changes in household structure as people age, most people who retire are insuring only themselves or themselves and a spouse.

Table 5 presents the regression results examining retirement. Panel A presents the reduced form regression, which measures the correlation between UMP-Plus and retirement, but also has potential selection bias. Panel B presents the difference-in-difference estimates, which is more likely to be interpretable as causal. Panel A shows that overall, there is not a strong relationship between being in UMP-Plus and retirement. However, when we examine retirement patterns by age, we do see that UMP-Plus enrollees retire at earlier ages than those enrolled in UMP Classic plans, with the reference category being age 60–65.

Panel B presents the difference-in-difference model results, which estimates the impact of the health insurance reform on the overall retirement patterns in the state-employment sector. Again,

Table 6. Descriptive statistics: leave state-health insurance rolls sample

		2013–2015		2016–2017	
		Stay in State Employment	Leave State Employment	Stay in State Employment	Leave State Employment
People (N)		252,033	3,423	182,521	712
Leave State HI Rolls			1.4%		0.4%
Age(years)					
	20–25	4%	11%	5%	10%
	25–30	9%	15%	10%	17%
	30–35	11%	15%	12%	16%
	35–40	11%	13%	12%	11%
	40–45	12%	11%	12%	12%
	45–50	13%	10%	13%	11%
	50–55	15%	11%	13%	9%
	55–60	15%	9%	14%	9%
	60–65	10%	6%	11%	5%
Female		57%	60%	58%	58%
State Employment Sector					
	Active Worker	87%	85%	84%	86%
	Commodity	0.1%	0%	0.1%	0%
	K-12	2%	2%	3%	0.8%
	Post-Secondary	10%	11%	11%	8%
	Other	1%	2%	2%	5%
Health					
	Self-reported Smoker	16%	16%	13%	9%
Health Insurance Information					
	UMP Plus	NA	NA	25%	22%
	Uniform Medical Plan	93%	91%	67%	68%
	Uniform Medical Plan CDHP	7%	9%	8%	9%
Coverage					
	Employee only	45%	57%	46%	59%
	Employee and Child	14%	12%	15%	13%
	Employee and Family	23%	16%	22%	13%
	Employee and Spouse	16%	12%	15%	10%

Notes: Sample includes UMP-insured state-employees who are between the ages of 40 and 65 and not enrolled in Medicare.

we find no impact on retirement overall, but we do find a difference in the age distribution of retirement in the five counties that introduced UMP-Plus, with retirements occurring at younger ages. We find no impact of retirement behavior within the four counties that introduced UMP-Plus later.

5.3 Impact on leaving state-employee health insurance rolls

Table 6 presents the descriptive statistics for the sample we estimate the impact of UMP-Plus on leaving state-employment sector. We have roughly 255,500 individuals in the base years (2013–2015), of which 1.4% leave state-employment. We have 183,233 people in the post-UMP-Plus years, of which only 0.4% leave. In both periods, individuals who leave state-employment are younger, on average, with a slight shift younger in the age distribution among leavers between the pre- and post-periods. Again, most individuals are women, most are active employees, and most are insuring themselves or themselves plus their family.

Table 7 presents the regression results in the same format as Table 5. The people who take up UMP-Plus are more likely to leave state-employee health insurance rolls, which is counter to theoretical prediction. When we examine the relationship by age, we find that while overall UMP-Plus enrollees are more likely to leave state-employment health insurance rolls, younger UMP-Plus enrollees, age 20–35, are less likely to leave state-employment health insurance rolls than those in UMP-Classic.

Table 7. Leave state-employment health insurance rolls results

PANEL A: REDUCED FORM	FULL SAMPLE			WITH AGE INTERACTIONS		
	Coef	Std. Error	Pr > t	Coef	Std. Error	Pr > t
HEALTH PLAN [UMP CLASSIC]						
UMP PLUS	0.000337	0.0001	<0.0001	0.000405	0.0002	0.0379
UNIFORM MEDICAL PLAN CDHP	0.000177	0.0001	0.0393	-0.000012	0.0004	0.9736
UMP PLUS × AGE 20–25				-0.002023	0.0006	0.0007
UMP PLUS × AGE 25–30				-0.001182	0.0003	0.0007
UMP PLUS × AGE 30–35				-0.000529	0.0003	0.0735
UMP PLUS × AGE 35–40				0.000100	0.0003	0.7143
UMP PLUS × AGE 40–45				0.000104	0.0003	0.6900
UMP PLUS × AGE 45–50				0.000011	0.0003	0.9651
UMP PLUS × AGE 50–55				0.000028	0.0002	0.9102
UMP PLUS × AGE 55–60				0.000185	0.0002	0.4415
PANEL B: DIFFERENCE IN DIFFERENCE ESTIMATES						
5-COUNTY	-0.000111	0.0001	0.4242	-0.000100	0.0001	0.4720
POST REFORM	-0.000978	0.0001	<0.0001	-0.000982	0.0001	<0.0001
5-COUNTY × POST REFORM	0.000180	0.0001	0.0297			
4-COUNTY	-0.000168	0.0002	0.4041	-0.000153	0.0002	0.4480
POST 2017 REFORM	-0.000561	0.0001	<0.0001	-0.000564	0.0001	<0.0001
4-COUNTY × POST 2017 REFORM	0.000163	0.0002	0.2922			
5-COUNTY × POST 2016 × AGE 20–25				-0.002088	0.0004	<0.0001
5-COUNTY × POST 2016 × AGE 25–30				-0.000706	0.0002	0.0007
5-COUNTY × POST 2016 × AGE 30–35				-0.000314	0.0002	0.0616
5-COUNTY × POST 2016 × AGE 35–40				0.000082	0.0002	0.5952
5-COUNTY × POST 2016 × AGE 40–45				0.000180	0.0001	0.2143
5-COUNTY × POST 2016 × AGE 45–50				0.000361	0.0001	0.0079
5-COUNTY × POST 2016 × AGE 50–55				0.000394	0.0001	0.0027
5-COUNTY × POST 2016 × AGE 55–60				0.000482	0.0001	0.0002
5-COUNTY × POST 2016 × AGE 60–65				0.000384	0.0002	0.0116
4-COUNTY × POST 2017 × AGE 20–25				-0.002683	0.0010	0.0051
4-COUNTY × POST 2017 × AGE 25–30				-0.000943	0.0006	0.0980
4-COUNTY × POST 2017 × AGE 30–35				0.000079	0.0005	0.8619
4-COUNTY × POST 2017 × AGE 35–40				-0.000095	0.0004	0.8110
4-COUNTY × POST 2017 × AGE 40–45				0.000264	0.0004	0.4767
4-COUNTY × POST 2017 × AGE 45–50				0.000312	0.0003	0.3550
4-COUNTY × POST 2017 × AGE 50–55				0.000363	0.0003	0.2606
4-COUNTY × POST 2017 × AGE 55–60				0.000432	0.0003	0.1738
4-COUNTY × POST 2017 × AGE 60–65				0.000390	0.0004	0.2922
N (PERSON-MONTHS)	2,063,047			2,063,047		

NOTES: Sample includes UMP-insured state-employees who are between the ages of 20 and 65 and not enrolled in Medicare. Other covariates included in the model include year, county of residence, 31 aggregated condition categories (ACC) based on previous diagnoses, insurance contract characteristics in the baseline year (Contract Type (individual, spouse, child); and eligibility type (active employee, K-12 coverage, commodity commission coverage, cobra coverage, retiree coverage, other coverage).

When we examine panel B, using difference-in-difference estimators, we find that UMP-Plus acted to retain younger workers in both regions it was introduced. However, within the 5-county region, UMP-Plus also led to an increase in the number of older workers (age 45–65) who left the state-employment health insurance rolls.

6. Policy implications

Employment-sponsored insurance is not going away, nor is its concern about price nor its influence over employment behavior. As employers, insurers and providers struggle with how to maintain high quality while decreasing costs, employers have the additional concern of how it will impact their employee’s decisions to work, retire, or shift employers. This work suggests that one strategy that could help firms retain younger workers is offering lower out-of-pocket premiums on health insurance. This is a tax-subsidized way to provide younger workers higher incomes and it makes them

less likely to leave the employer. However, firms must also be careful of the impact on older workers. This work shows that lowering premiums on health insurance in both employment and retirement can lead to earlier retirement ages and more older workers leaving the sector.

7. Conclusions

The state of WA increased its health insurance offerings by two through creating value-based insurance networks. In the first year, they achieved an impressive switching rate of approximately one-third of eligible workers, but this was dampened dramatically to 10% in 2017 when they expanded the intervention area. The first year switching rate is comparable to a large private employer, who more than doubled the number of choices and was able to get switching rates above 30% (Fronstin and Roebuck, 2017). Even in year 2, the switching rate was better than has been achieved in Medicare, where approximately 5% of Medicare Advantage members switch to Traditional Medicare, and vice versa, in recent years (Newhouse *et al.*, 2012).

This analysis shows that, regardless of the impact value-based insurance has on actual health, decreasing premiums without increasing financial risk to the participant has the potential to increase employee retention among younger workers. An important caveat is that these results are in the short-term; before wages or the wage-to-fringe-benefit ratio would have time to adjust, and with the state acting as a first-mover. The impact on retention may not be sustainable in the long-term. Further, if firms decrease costs to both employees and retirees, it can lead to a shift down in the age distribution of retirements.

There are a lot of questions left unanswered. There is a big difference in the estimated effect of the intervention between the two geographic regions. More work should be done to understand why, both in terms of the dramatic drop in the enrollment rate and in terms of the outcomes themselves. Future work should strive to understand why UMP-Plus is leading more older workers to leave state-employment health insurance sector, contrary to theoretical predictions. Descriptively, individuals who leave the state-employment sector after having signed up for UMP-Plus, compared to individual who leave who were insured by another product, are more likely to be female (64% vs. 58%), to be active state employees (92% vs 85%), and more likely to be insuring themselves and a child (18% vs. 12%). Yet we lack the data here to understand why these workers responded by leaving the state-employment health insurance sector. Future work should also assess the impact on retirement through changes in health. We do not anticipate any effects health insurance may have on health to impact retirement behavior within the first 2 years, but has potential in the long-term.

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References

- Blau DM and Gilleskie DB (2006) Health insurance and retirement of married couples. *Journal of Applied Econometrics* **21**, 935–953.
- Blau DM and Gilleskie DB (2008) The role of retiree health insurance in the employment behavior of older men. *International Economic Review* **49**, 475–514.

- Boyle MA and Lahey JN (2010) Health insurance and the labor supply decisions of older workers: evidence from a US Department of Veterans Affairs expansion. *Journal of Public Economics* **94**, 467–478.
- Centers for Medicare & Medicaid Services (2014) State Innovation Models Initiative Round Two [accessed on June 30, 2018]. Available at <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2014-Fact-sheets-items/2014-12-16.html>.
- Choudhry NK, Fischer MA, Avorn J, Schneeweiss S, Solomon DH, Berman C, Jan S, Liu J, Lii J, Brookhart MA, Mahoney JJ and Shrank WH (2010) At Pitney Bowes, value-based insurance design cut copayments and increased drug adherence. *Health Affairs (Millwood)* **29**, 1995–2001.
- Choudhry NK, Avorn J, Glynn RJ, Antman EM, Schneeweiss S, Toscano M, Reisman L, Fernandes J, Spettell C, Lee JL, Levin R, Brennan T and Shrank WH (2011) Full coverage for preventive medications after myocardial infarction. *N Engl J Medicine* **365**, 2088–2089.
- Cid C, Ellis RP, Vargas V, Wasem J and Prieto L (2016) Global risk-adjusted payment models. In Scheffler RM (ed.), *World Scientific Handbook of Global Health Economics and Public Policy*, vol. 1. New Jersey: World Scientific, pp. 20–26. <https://doi.org/10.1142/9200>.
- Fisher ES, Shortell SM, Kreindler SA, Van Citters AD and Larson BK (2012) A framework for evaluating the formation, implementation, and performance of accountable care organizations. *Health Affairs* **31**, 2368–2378.
- Fitzpatrick MD (2014) Retiree health insurance for public school employees: does it affect retirement? *Journal of Health Economics* **38**, 88–98.
- Fronstin P and Roebuck MC. Health Plan Switching: A Case Study—Implications for Private- and Public-Health-Insurance Exchanges and Increased Health Plan Choice, EBRI Issue Brief, no. 432, (Employee Benefit Research Institute, March 23, 2017). https://www.ebri.org/pdf/briefspdf/EBRI_IB_432_PlnSwch.23Mar17.pdf.
- Gibson TB, Mahoney J, Ranghell K, Cherney BJ and McElwee N (2011) Value-based insurance plus disease management increased medication use and produced savings. *Health Affairs (Millwood)* **30**, 100–108.
- Gruber J and Madrian BC (2001) Health insurance, labor supply, and job mobility: A critical review of the literature, presented at the Research Agenda Setting Conference, University of Michigan, July 8–10, 2001.
- Health Care Authority (2015) PEBB Enrollment Report for January 2015 Coverage. https://www.staging.hca.wa.gov/assets/pebb/carrier_012015.pdf. Accessed 7/31/2018.
- Health Care Authority (2016a) How UMP Plus Compares to UMP Classic. www.hca.wa.gov/ump. Accessed 7/31/2018.
- Health Care Authority (2016b) What's Changing for UMP in 2016? <https://www.hca.wa.gov/search/site/UMP%2520enrollment> accessed 7/31/2018.
- Health Care Authority (2018) Public Employees Benefits Board Retreat. <https://www.hca.wa.gov/assets/pebb/pebb-meeting-briefing-book-180131.pdf> accessed 9/24/2018.
- Johnson RW, Davidoff AJ and Perese K (2003) Health insurance costs and early retirement decisions. *ILR Review* **56**, 716–729.
- Kaiser Family Foundation (2016) State Health Facts. <https://www.kff.org/other/state-indicator/total-population/?dataView=1¤tTimeframe=0&selectedDistributions=employer&selectedRows=%7B%22states%22:%7B%22washington%22:%7B%7D%7D%7D&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>.
- Kaufman BG, Spivack BS, Stearns SC, Song PH and O'Brien EC (2017) Impact of accountable care organizations on utilization, care, and outcomes: a systematic review. *Medical Care Research and Review*. <https://doi.org/10.1177/1077558717745916>.
- Madrian BC (2005) The U.S. health care system and labor markets. *Conference Series; [Proceedings], Federal Reserve Bank of Boston* **50**, 137–163.
- McClellan M, Udayakumar K, Thoumi A, Gonzalez-Smith J, Kadakia K, Kurek N, Abdulmalik M and Darzi AW (2017) Improving care and lowering costs: evidence and lessons from a global analysis of accountable care reforms. *Health Affairs* **36**, 1920–1927.
- Newhouse JP, Price M, Huang J, McWilliams JM and Hsu J (2012) Steps to Reduce Favorable Risk Selection in Medicare Advantage largely succeeded, boding well for health insurance exchanges. *Health Affairs* **12**, 2618–2628.
- Nyce S, Schieber SJ, Shoven JB, Slavov SN and Wise DA (2013) Does retiree health insurance encourage early retirement? *Journal of Public Economics* **104**, 40–51.
- Rajkumar R, Conway PH and Tavenner M (2014) CMS — engaging multiple payers in payment reform. *JAMA* **311**, 1967–1968.
- Rogowski J and Karoly L (2000) Health insurance and retirement behavior: evidence from the health and retirement survey. *Journal of Health Economics* **19**, 529–539.
- Shoven JB and Slavov SN (2014) The role of retiree health insurance in the early retirement of public sector employees. *Journal of Health Economics* **38**, 99–108.
- Shrank W (2013) The center for medicare and medicaid innovation's blueprint for rapid-cycle evaluation of new care and payment models. *Health Affairs* **32**, 807–812.
- Wertz D, Hou L, DeVries A, Dupclay L, McGowan F, Malinowski B, et al. (2012) Clinical and economic outcomes of the Cincinnati Pharmacy Coaching Program for diabetes and hypertension. *Managed Care (Langhorne, PA)* **21**, 44–54.

Appendix

Table A1. Washington State Health Care Authority Clinical Classification codes used for Risk Adjustment

Category Name	Description
ACC-ID	Infectious and Parasitic
ACC-CA	Malignant Neoplasm
ACC-BN	Benign/ <i>In Situ</i> /Uncertain Neoplasm
ACC-DM	Diabetes
ACC-NU	Nutritional and Metabolic
ACC-LV	Hepatobiliary
ACC-GI	Gastrointestinal
ACC-MU	Musculoskeletal and Connective Tissue
ACC-BL	Hematological
ACC-CG	Cognitive Disorders
ACC-SA	Substance Abuse
ACC-PS	Psychiatric
ACC-DD	Developmental Disability
ACC-NE	Neurological
ACC-AR	Cardio-Respiratory Arrest
ACC-HR	Cardiovascular
ACC-CV	Cerebrovascular
ACC-VS	Vascular
ACC-PU	Pulmonary
ACC-EY	Ophthalmic
ACC-EN	Ears, Nose and Throat
ACC-UR	Urinary
ACC-GU	Genital
ACC-PG	Obstetric
ACC-SK	Dermatologic
ACC-IJ	Injury, Poisoning
ACC-SY	Symptoms, Signs and Ill-Defined Conditions
ACC-NN	Neonates
ACC-TP	Transplants, Openings, Other V-Codes
ACC-SC	Screening/History
ACC-CM	Complications of Care