



Health benefits and public costs of expanding care during pregnancy to new immigrants

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Objectives

Review Oregon policy on pregnancy coverage for immigrants

Share data from Oregon's expansion of prenatal care to immigrant population- health benefits and public costs

Describe postpartum coverage for immigrant population in Oregon

Immigrant populations

Oregon

- 9.9% of the state is foreign born (~397,000)
- 128,523 are reproductive age women (15-50)
- 46% Latino
- Since 2000: 41% growth

North Carolina

- 8.1% of the state is foreign born (~829,000)
- 279,750 are reproductive age women (15-50)
- 47% Latino
- Since 2000: 92% growth

Medicaid & Women's Health

- 63% of Medicaid recipients are reproductive aged women
- Health care during pregnancy has multigenerational effects:
 - Prenatal care
 - Inadequate PNC linked with low birth weight, preterm birth, and neonatal death
 - Postpartum care
 - Short interpregnancy intervals associated with maternal obesity, diabetes, preterm birth, low birth weight, NICU admission and infant mortality
 - Contraception is effective and cost-saving strategy

Emergency Medicaid

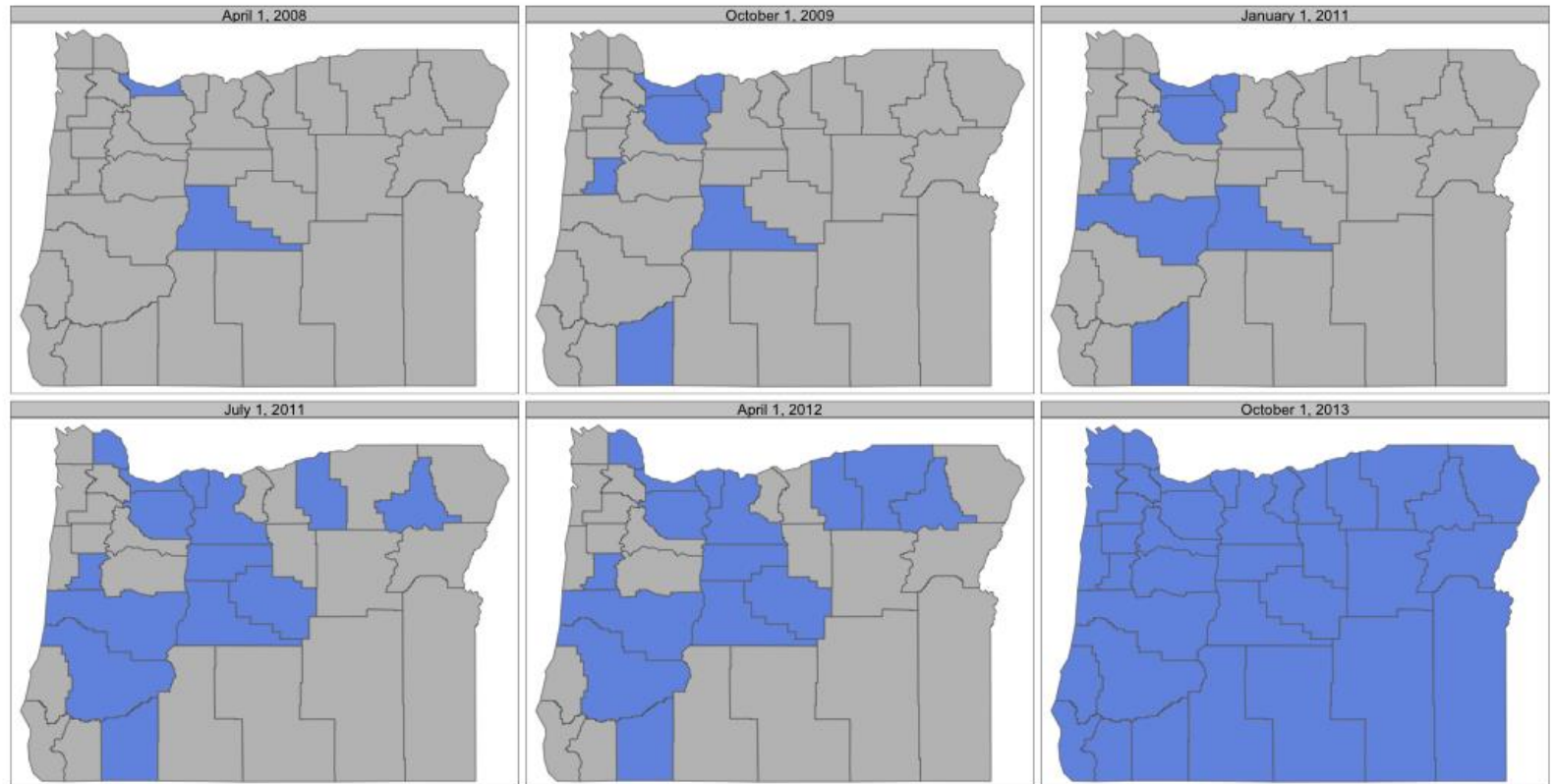
- Same financial eligibility requirements
- Immigrants are eligible only for Emergency Medicaid for first 5 years of residence
- Unauthorized immigrants are eligible only for Emergency Medicaid
- Covers only emergency care and obstetric admissions
 - In Oregon & North Carolina, over 80% of claims are for childbirth

Emergency Medicaid in Oregon

- States can choose to expand EM coverage through CHIP or their own funds
- In 2008, Oregon expanded prenatal care coverage under CHIP
- In 2017, Oregon expanded to include postpartum care with state funds
 - Includes immediate postpartum contraception

PRENATAL CARE EXPANSION

Staggered rollout 2008 to 2013



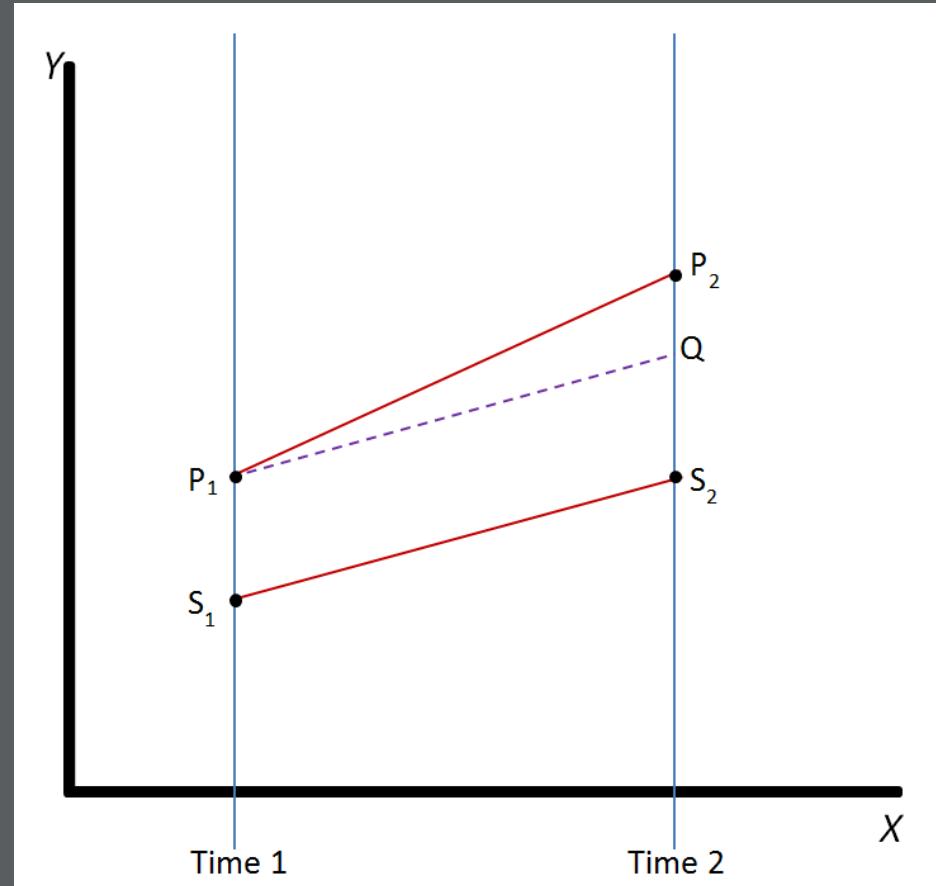
Graphic courtesy of Duncan Lawrence, PhD

Data Source

- Medicaid claims database encompassing claims from Jan 1, 2003 to Oct 1, 2015
- Includes standard Medicaid, EM and EM Plus
- Developed an algorithm to identify claims related to an individual pregnancy, and to link women and infants

A Natural experiment

- Stepwise introduction allowed use to isolate the effects of prenatal care on women and their infants
- Difference-in-difference methodology to account for county-level confounders and time as well as unmeasured confounders at the county level

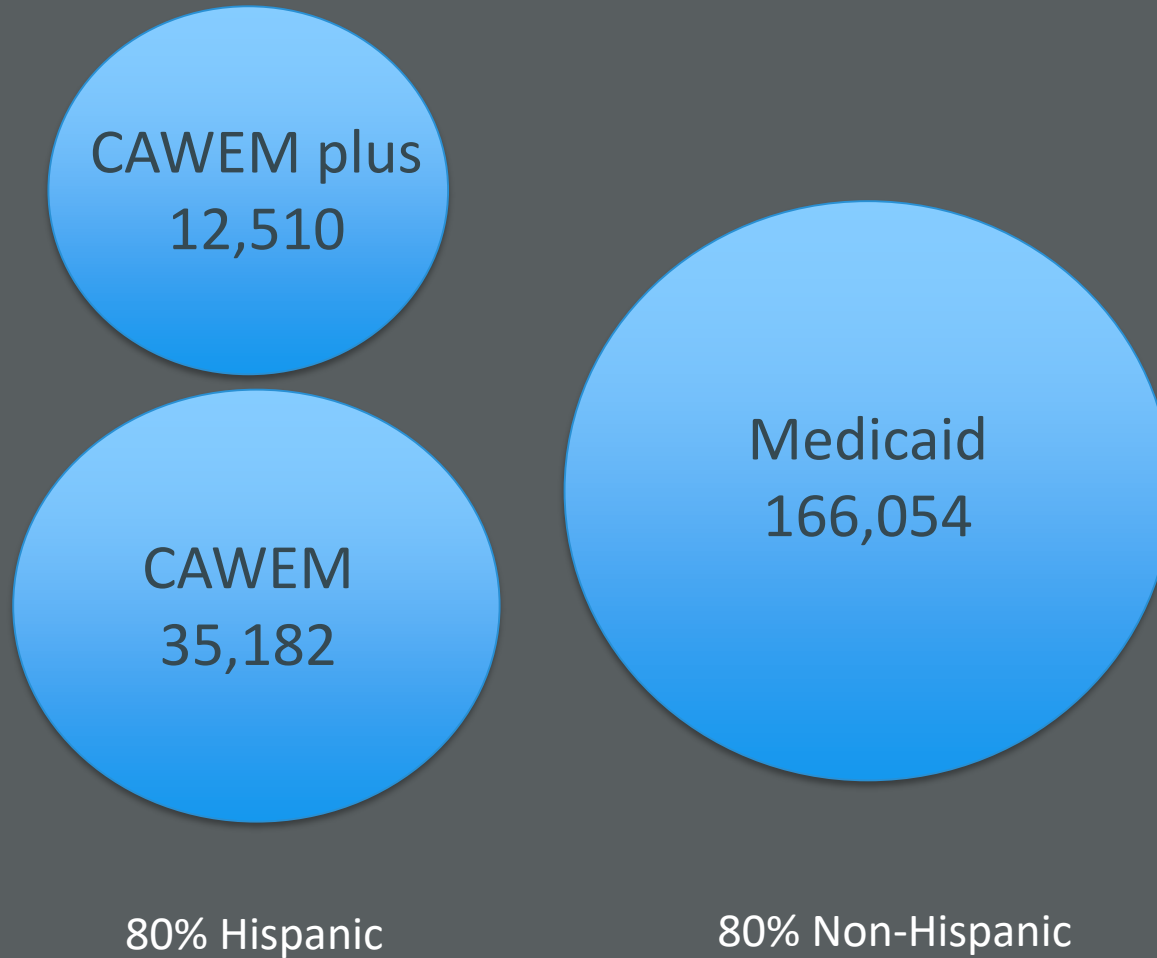




Outcomes

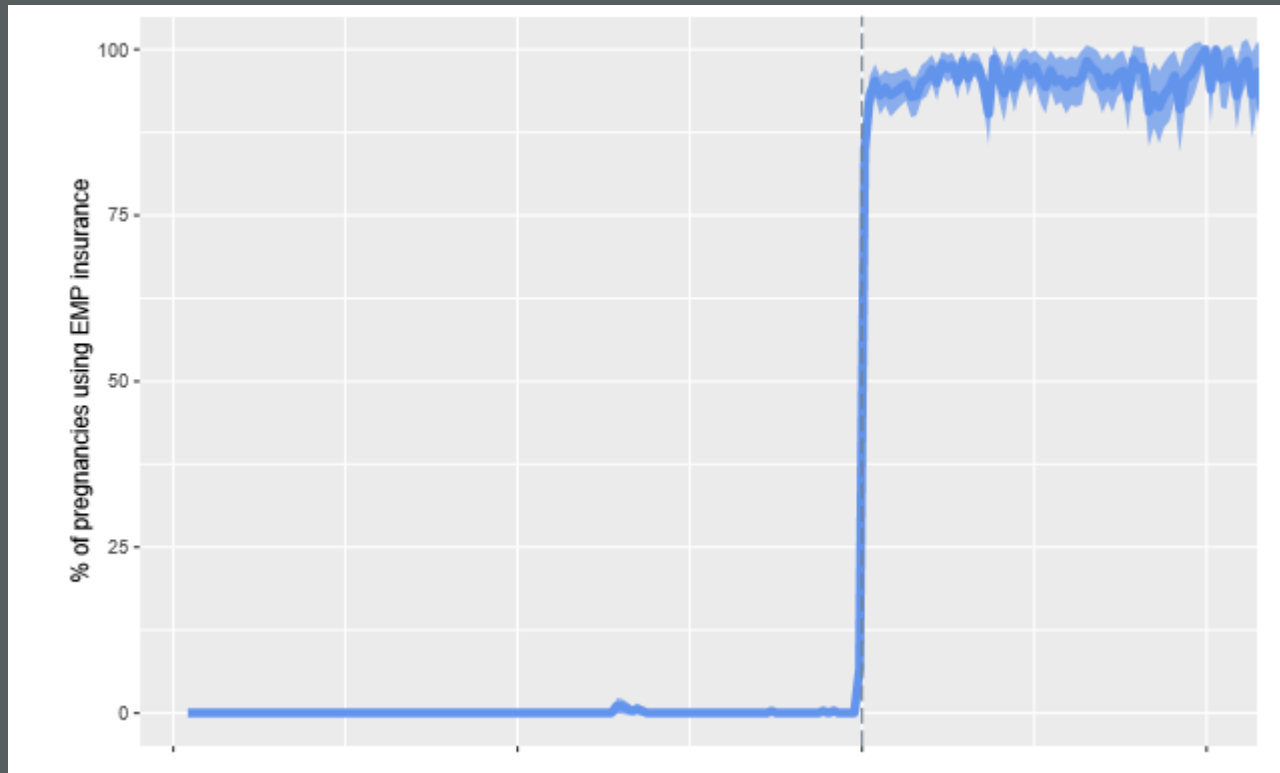
- Utilization: uptake of the program, adequacy of prenatal care
 - ultrasound, vaccinations, diabetes screening, and infant care (well-child visits, screenings and vaccines)
- Maternal and infant outcomes
 - diagnosis of gestational diabetes, shoulder dystocia, low birthweight, infant mortality, preterm delivery

Study Population



Similar on age, gravidity, parity.

When covered, prenatal care was utilized.



The proportion of pregnancies with prenatal care rapidly increased following roll out.

What Happens When States Offer Prenatal Care Coverage to Unauthorized Immigrants?

Unauthorized immigrants often lack essential health care, even when pregnant. In 2008, Oregon extended publicly funded prenatal care coverage to unauthorized and recently arrived immigrants. Results from this pilot can inform policy efforts to reduce health inequality.

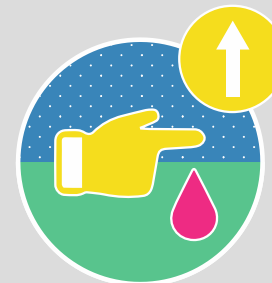
→ Women Get the Care They Need



7 More Prenatal
Visits on Average



74% Increase in
Ultrasounds



61% Increase in
Diabetes
Screenings

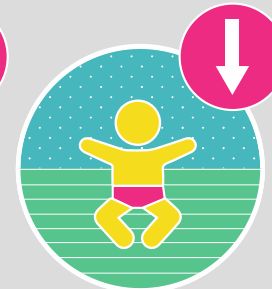
→ Babies Get Healthier



Increased
Vaccinations



Reduced Rate of
Extremely Low
Birth Weight



Reduced Infant
Mortality

Outcomes for infants

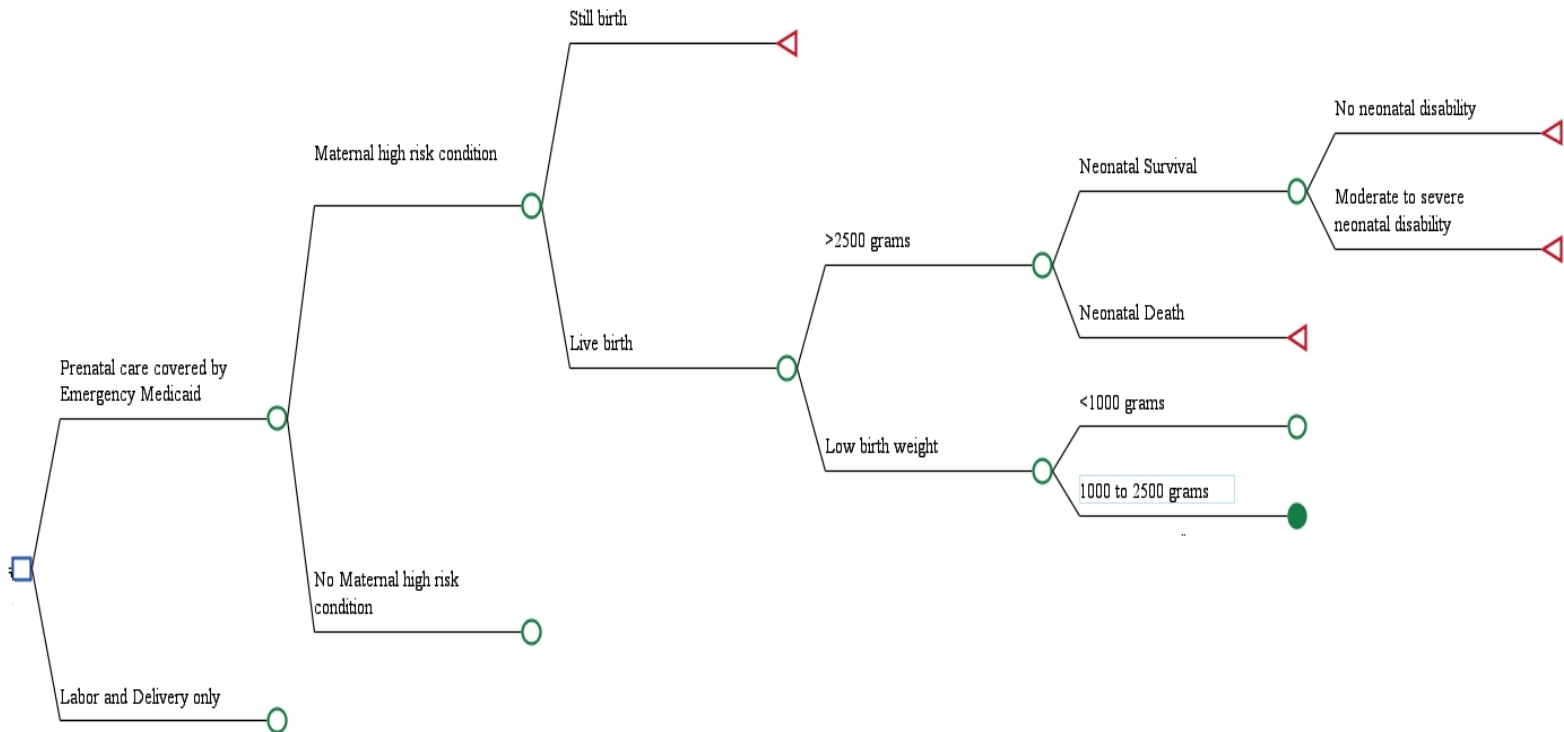
Table 3. Effect of Emergency Medicaid Plus Prenatal on Utilization and Health Outcomes for Infants

Outcome	DID Model Effect 95% CI	Triple DID Model Effect 95% CI
Well child check (0/1)	0.01 (−0.00 to 0.01)	0.01 (0.01–0.01)
No. of well child checks (count)	0.24 (0.07 to 0.41)	0.29 (0.14–0.44)
No. of outpatient visits (count)	0.21 (−0.06 to 0.49)	0.74 (0.36–1.11)
No. of emergency department visits (count)	0.16 (0.05 to 0.28)	0.05 (−0.03 to 0.13)
Screenings and vaccinations (0/1)	0.04 (0.002 to 0.074)	0.05 (0.02 to 0.07)
Low birth weight (per 1,000)	1.84 (−6.74 to 10.42)	4.80 (0.30 to 9.30)
Very low birth weight (per 1,000)	1.23 (−6.76 to 9.26)	3.66 (−1.66 to 8.16)
Extremely low birth weight (per 1,000)	−1.33 (−2.44 to −0.21)	−1.28 (−2.08 to −0.49)
Preterm birth at less than 37 wk of gestation (per 1,000)	2.46 (−8.05 to 12.97)	10.12 (3.15 to 17.09)
Death in first 365 d (per 1,000)	−1.01 (−1.42 to −0.60)	−1.40 (−1.99 to −0.82)
DID, difference-in-differences.		

Low birth weight=2,499 g or less; very low birth weight=1,500 g or less; extremely low birth weight=1,000 g or less. Emergency department visits include urgent care. All models include county fixed effects, month fixed effects, county-specific time trends, and covariates (age polynomial, race fixed effects, ethnicity fixed effects, and gravidity fixed effects [defined as the number of pregnancies identified between 2003 and 2015]). n=47,692 for DID models and 213,746 for triple DID models.

What are the costs of expanding prenatal care?

- Cost effectiveness analysis
- Compares two strategies:
 - Coverage of delivery only
 - Coverage of prenatal care & delivery
- 17 states currently cover the delivery only
 - 175,000
- Outcomes included:
 - Costs, QALYs, cases of cerebral palsy and infant death



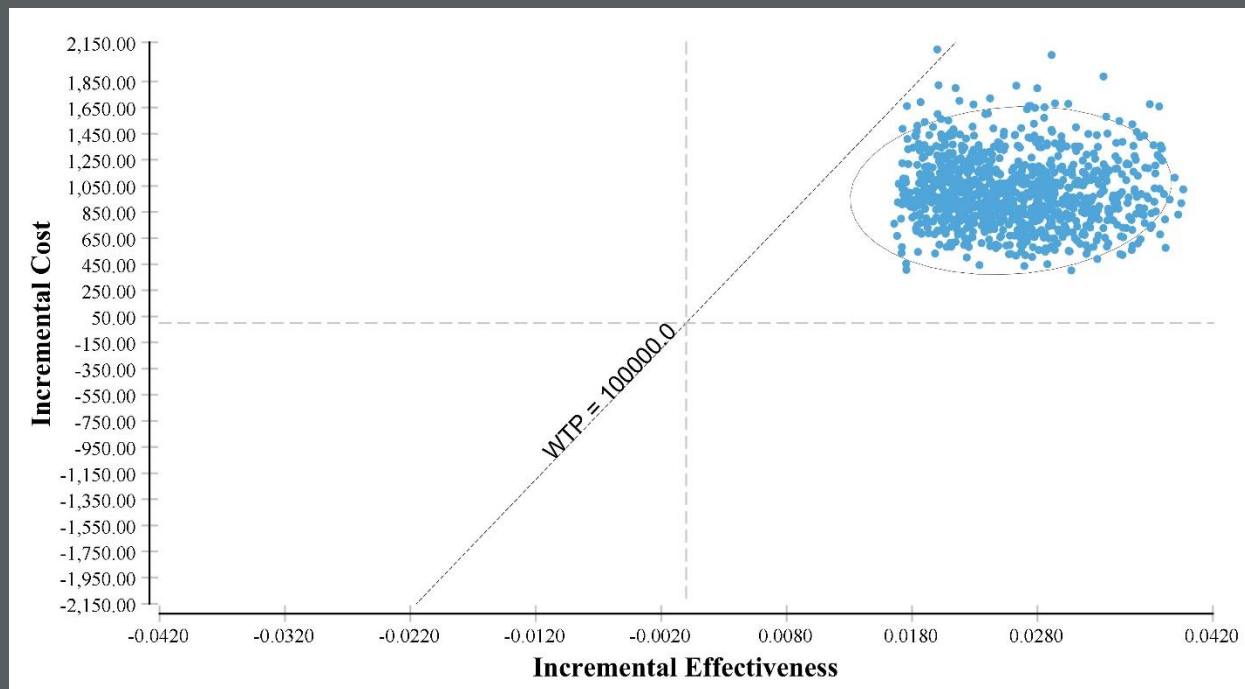
Model inputs from Medicaid claims & the literature
1 way, 2 way and multivariate sensitivity analysis

Model truncated for clarity

Results: number needed to treat?

- For every 865 women receiving prenatal care, one infant death would be averted (\$328,700).
- 2,564 women would have to receive prenatal care to prevent one case of severe cerebral palsy (\$974,359)
- 18, 488 foreign born women gave birth in NC within last year

Sensitivity Analysis: Monte Carlo Simulation



In 99% of iterations, prenatal care was a cost-effective strategy for Medicaid

POSTPARTUM CARE EXPANSION

EMERGENCY MEDICAID &

UNINTENDED PREGNANCY IN OREGON

RETROSPECTIVE COHORT STUDY

Followed a postpartum group
of EM patients

+

COST BENEFIT ANALYSIS

Compared costs of offering a
postpartum IUD with baseline policy
of just covering the delivery

+

IUD UPTAKE FROM RECORDS

Costs and repeat admissions from
hospital records



OHSU
Study



Obstetrical
Diagnoses





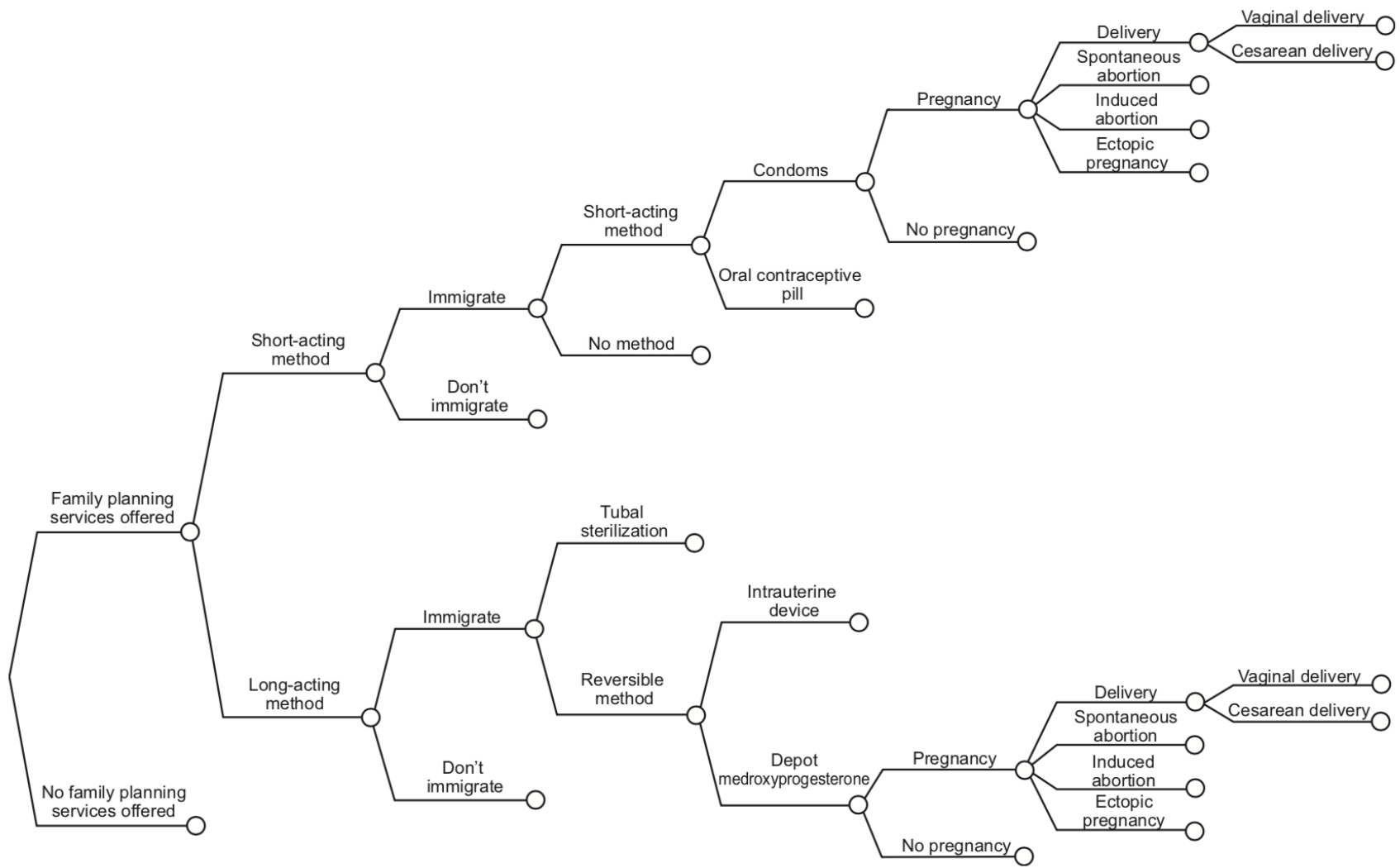
POSTPARTUM LARC
WOULD SAVE OREGON

➤ \$ **2.94** PER \$ SPENT

N=1037	2003	2004	2005	2006
PREGNANCIES WITHOUT PP IUD PROGRAM	27	80	78	81
COSTS WITHOUT PP IUD PROGRAM	\$213,278	\$637,126	\$631,010	\$636,210
COSTS OF IUD PROGRAM	\$106,000	\$14,927	\$16,931	\$15,106
COSTS OF PREGNANCIES EXPECTED WITH PP IUD PROGRAM	\$102,310	\$297,970	\$356,180	\$395,320
NET SAVINGS FOR OREGON	\$4,968	\$324,229	\$257,899	\$225,784

Postpartum contraception

- Cost effectiveness analysis
- Perspectives: hospital, state, society
- Compared baseline policy of covering delivery only with delivery plus postpartum contraception



Postpartum care

- Model inputs:
 - Medicaid claims
 - Literature
- Costs, unintended pregnancy and QALYs
- 1 way, 2 way and multivariate sensitivity analysis
 - Monte Carlo Simulation

Results

- Society
 - Postpartum care leads to societal savings of \$17,792 per woman (\$9,776 compared with \$27,568)
- State
 - Saves \$108 per woman (\$929 to \$821).
- Hospital
 - Loss of \$367 per woman

5 year time horizon

Results: Monte Carlo

Society: Cost saving in 99% of trials

State: Cost saving in 64.5% of trials

Hospital: Not cost savings in 98.5% of trials

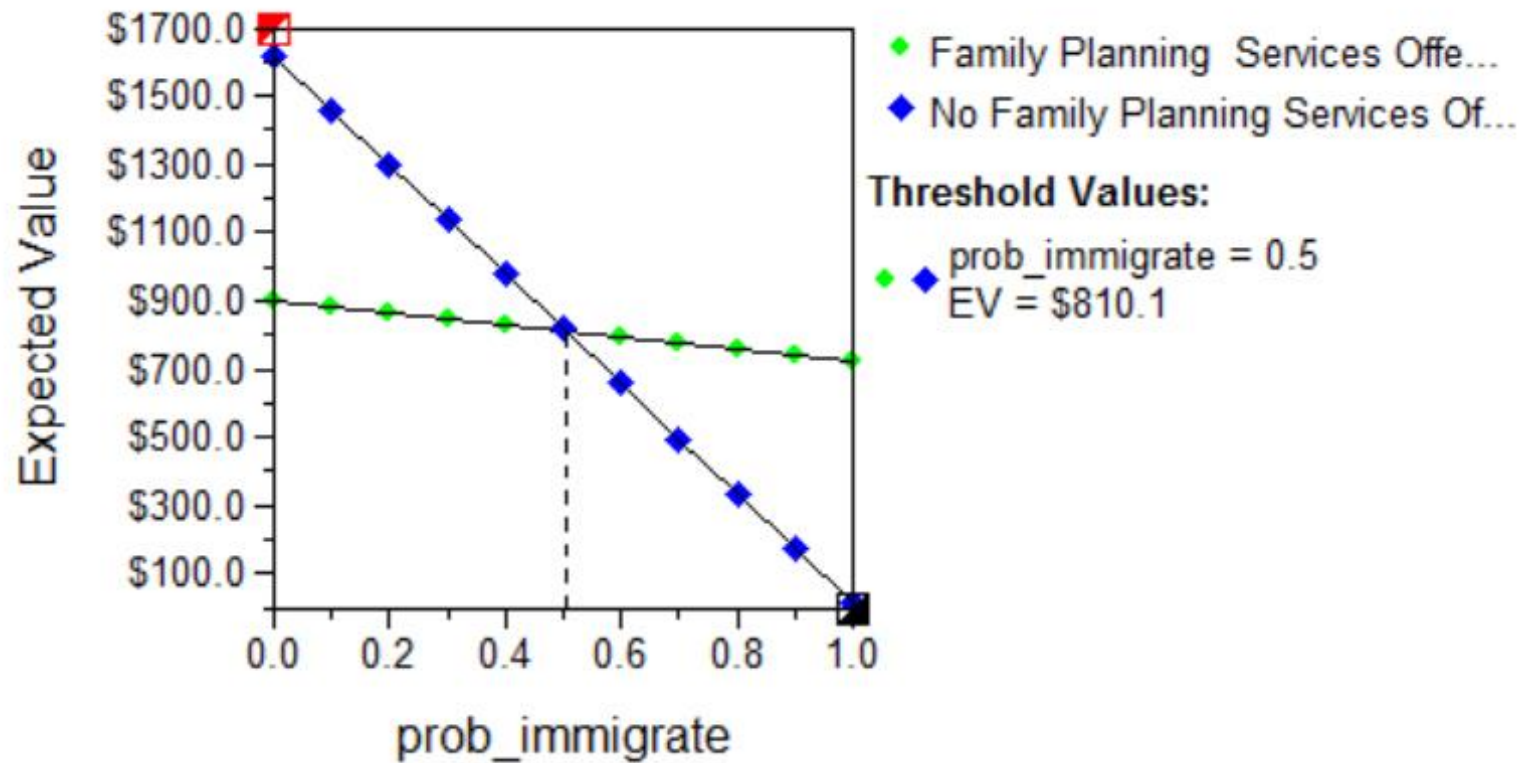


Table 3. New Immigrant Characteristics and Projected Costs by State of Provision of Postpartum Contraception for New Immigrants

State	New Immigrants	Growth 1990–2004 (%)	At Risk for Pregnancy	State Medicaid Savings (\$)	Hospital Losses (\$)	Societal Savings (\$)
California	2,450,000	66	117,600	12,800,000	71,300,000	2,010,000,000
Texas	1,380,000	214	66,240	7,100,000	40,100,000	1,800,000,000
Florida	885,000	269	42,480	4,600,000	25,800,000	755,000,000
Arizona	450,000	400	21,600	2,300,000	13,000,000	384,000,000
Nevada	170,000	580	8,160	880,000	–4,900,000	145,000,000
New Mexico	50,000	150	2,400	260,000	–1,400,000	43,000,000
Oregon	175,000	600	8,400	907,000	–5,010,000	149,000,000
Washington	210,000	425	10,080	1,100,000	–6,100,000	180,000,000
Utah	98,000	388	4,928	178,000	2,888,000	17,888,000
North Carolina	395,000	1480	18,960	2,000,000	11,500,000	337,000,000

QUESTIONS?

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Table 1. Descriptive Statistics: Maternal and Infant Outcomes by Insurance Group

Insurance	Emergency Medicaid (EM)	Emergency Medicaid Plus Prenatal (EMP)	Medicaid	EM vs EMP
No. of supervision visits (count)	0.24±1.22	8.52±5.21	6.11±4.17	8.27 (8.18 to 8.37)
No. of outpatient visits (count)	0.29±1.75	12.23±7.27	11.04±8.68	11.94 (11.81 to 12.07)
Early visit (0/1)	0.02±0.13	0.50±0.50	0.56±0.50	0.48 (0.47 to 0.49)
Early visit and 9 or more visits (0/1)	0.01±0.08	0.43±0.50	0.41±0.49	0.43 (0.42 to 0.44)
Rh immunization (per 1,000)	7.70±87.43	22.46±148.19	89.39±285.30	14.76 (12.01 to 17.51)
Tdap vaccination (0/1)	0.01±0.08	0.32±0.47	0.27±0.45	0.31 (0.30 to 0.32)
Glucose testing (0/1)	0.02±0.14	0.73±0.45	0.75±0.44	0.71 (0.70 to 0.71)
Fetal ultrasonography (0/1)	0.04±0.21	0.87±0.34	0.88±0.33	0.83 (0.82 to 0.83)
No. of well child checks (count)	4.92±2.54	5.21±2.93	4.38±2.50	0.30 (0.24 to 0.35)
No. of outpatient visits (count)	9.14±5.81	10.27±5.82	9.54±6.07	1.12 (1.00 to 1.24)
No. of emergency department visits (count)	0.22±0.70	0.68±1.22	0.38±0.95	0.46 (0.43 to 0.48)
Screenings and vaccinations (0/1)	0.82±0.38	0.90±0.30	0.79±0.41	0.08 (0.07 to 0.09)
Low birth weight (per 1,000)*	49.63±217.19	59.95±237.41	61.01±239.34	10.32 (5.58 to 15.06)
Very low birth weight (per 1,000) [†]	3.75±61.14	3.52±59.20	4.68±68.25	-0.24 (-1.45 to 0.98)
Extremely low birth weight (per 1,000) [‡]	1.76±41.94	0.72±26.81	1.77±42.04	-1.04 (-1.69 to -0.40)
Preterm birth at less than 37 wk of gestation (per 1,000) [§]	66.32±248.84	75.46±264.14	78.93±269.63	9.14 (3.83 to 14.45)
Death in first 365 d (per 1,000)	1.08±32.85	0.32±17.88	1.32±36.29	-0.76 (-1.23 to -0.30)

Rh, rhesus; Tdap, tetanus, diphtheria and pertussis.

Data are means±SD or difference in means between EM and EMP (95% CI). n=35,182 for EM; n=12,510 for EMP; n=166,054 for Medicaid.

* n=1,746 for EM; n=750 for EMP; n=10,130 for Medicaid.

[†] n=132 for EM; n=44 for EMP; n=777 for Medicaid.

[‡] n=62 for EM; n=9 for EMP; n=294 for Medicaid.

[§] n=2,333 for EM; n=944 for EMP; n=13,106 for Medicaid.

^{||} n=38 for EM; n=4 for EMP; n=219 for Medicaid.

Results

Policy	Costs (2018 dollars)	QALYs	Infant deaths (in first year of life)	Cases of moderate to severe disability associated with cerebral palsy
Coverage for delivery only	\$16,250	32.958	0.00077	0.0159
Coverage for delivery and prenatal care	\$16,596	32.943	0.0006	0.0155
Estimated difference	+\$380	+.017	-0.0001	-0.0004
Cohort total	\$66,500,000	+2,922	-224	-68