

Oregon Public Health Nurse Home Visiting

Babies First!, CaCoon, Maternity Case Management

Evidence About Health Outcomes

Introduction: Cate Wilcox
Presentation: Mary Ann Evans

October 7, 2013



Acknowledgements



Organizations:

Local County Health Departments

Oregon Health Authority (OHA)

Maternal Child Health, Immunization Program, Medical Assistance Program

Oregon Health & Science University

Oregon Center for Children & Youth with Special Health Needs (OCCYSHN)

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Webinar Outline

- Orientation to Handouts
- Study Purpose
- Nurse Home Visiting Programs
- Data Sources
- Health Outcome Measures
- Study Comparison Groups
- Study Results by Program
- Q & A and Brief Survey



Orientation to Handouts

- 6 one page briefs (thanks-Wendy Morgan)
 - 1 Babies First!
 - 3 CaCoon
 - 2 Maternity Case Management

Technical reports on these studies provide detailed description of the research and analysis methods used

- County Specific Data
 - 3 years of home visiting data
 - Medicaid enrollment
 - Children with special health needs estimate
 - Census Data

Babies First! Outcomes for High-Risk Children up to Age 5

Babies First is a statewide public health nurse home visiting program for families with babies and young children up to age 5 years old. The goal is to identify high-risk infants (based on social, emotional and medical risk factors) and improve the health outcomes of these vulnerable children through prevention and early intervention.

Compared to Medicaid, children that received Babies First Medicaid nurse home visits had significantly higher rates of:

Immunizations

Immunizations save lives and improve quality of life. Babies First annual flu immunization rates were more than one and half times greater than Medicaid children in 2010 and 2011. For children who turned two years old during the year, Babies First up-to-date immunization rates were 30% higher than Medicaid in 2010 and 21% higher in 2011.

Annual well-child visits

Well-child visits are routinely scheduled preventive visits for children. Well-child visits are essential for maintaining long term positive health for children. Babies First children were 37% more likely to receive an annual well child visit than other Medicaid children in 2010 and 36% more in 2011.

Annual dental visits

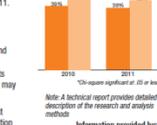
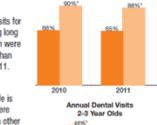
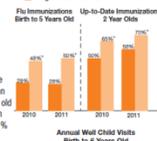
Developing good dental habits and routines early in life is important for long term health. Babies First clients were 15% more likely to receive an annual dental visit than other Medicaid children in 2010 and 10% more in 2011.

Babies First Potential Medicaid Cost Savings

Immunizations: Immunizations generate significant economic benefits. The Centers for Disease Control and Prevention (CDC) estimates for every dollar spent on immunizations about six dollars in direct medical costs are saved. The higher Babies First immunization rate may therefore result in considerable Medicaid savings.

Medical hospital costs: A recent study indicates that Babies First visits were associated with a 10% reduction in Medicaid hospitalization compared to clients who did not receive nurse home visits. The national average cost of a child's hospital visit is \$5,200, indicating substantial potential Medicaid savings.

Babies First
971-673-0252 <http://itf.11a.gov/1916HS>



Note: A technical report provides detailed description of the research and analysis methods.
Information provided by: Oregon Health Authority, Department of Medical Assistance Programs, Immunization Program, Maternal and Child Health.



CaCoon: Medicaid Diagnosis Comparison between Children with Special Health Needs Who Did and Did Not Receive CaCoon Services

CaCoon is an Oregon public health nurse home visiting program for children and youth with special health needs (CYSNH) from birth to 21 years. CaCoon nurses provide comprehensive nurse assessments, interventions and care coordination to improve access to care and health outcomes.

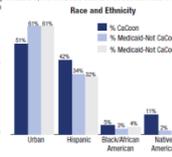
Study
The study analyzed Medicaid claims and compared special health needs diagnosis of clients that did and did not receive CaCoon visits. The study included 1,188 Medicaid clients with CaCoon visits in 2009 and 122,082 Medicaid clients with no CaCoon visits. The study was limited to clients from birth up to 5 years old.

Special Health Needs Diagnoses
Congenital, mental health, behavioral health, and developmental diagnosis codes defined special health needs diagnoses (SHN). The quantity and type of SHN varied significantly between CaCoon clients and Medicaid-Not CaCoon clients. Thirteen percent of CaCoon clients had no SHN diagnosis compared to 89 percent of Medicaid-Not CaCoon clients. Twenty seven percent of CaCoon clients had more than one SHN diagnosis compared to only 2% of Medicaid-Not CaCoon clients.

Results
CaCoon clients had different demographic and medical risk compared to Medicaid-Not CaCoon clients. CaCoon served a significantly higher frequency of younger, male, rural, Hispanic, Black/African American, and Native American clients. CaCoon clients maintained steady enrollment in Medicaid with 83 percent enrolled for three or more years compared to only 29 percent of Medicaid clients with a SHN diagnosis compared to Medicaid clients without a SHN.

Inpatient Hospitalization
Inpatient hospitalization varied greatly between the groups. CaCoon clients were hospitalized nearly three times more than Medicaid-Not CaCoon clients with a SHN and nearly 10 times more than Medicaid-Not CaCoon clients without a SHN. CaCoon served more demographically at-risk and higher medical risk clients than Medicaid clients who did not receive CaCoon services.

Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyph.org



Diagnosis	CaCoon	Medicaid-Not CaCoon
Developmental Delay	17%	4%
Heart Conditions	13%	1%
Hearing Loss	11%	1%
Failure to Thrive	9%	1%
Autism	6%	1%
Failure to Thrive	6%	1%
Brain Conditions	6%	1%
Other Organized Disorder	5%	1%

Diagnosis	CaCoon	Medicaid-Not CaCoon with SHN
Developmental Delay	27%	5%
Heart Conditions	11%	12%
Hearing Loss	9%	9%
Autism	9%	5%
Failure to Thrive	8%	4%
Autism	5%	4%
Failure to Thrive	4%	4%
Other Organized Disorder	4%	4%



CaCoon: Evidence-Based Outcomes for Serving Children with Special Health Needs

CaCoon is a statewide public health nurse home visiting program providing care coordination for families with children, birth to 21 years, with special health needs. These children and their families often have very complex health and related needs requiring coordination across multiple systems of care. CaCoon nurses assess family needs and provide interventions and care coordination to improve their health and well-being. The goal is to assure these children access to needed health and related services, spanning multiple systems of care, resulting in optimal health and well-being.

CaCoon children have complex needs. About 27% of CaCoon children have multiple chronic medical diagnoses, compared to only 2% of Medicaid children not served by CaCoon. CaCoon diagnoses include cleft palate, developmental delay, Down syndrome, epilepsy, failure to thrive, hearing loss, heart and brain disorders, cerebral palsy, spine bifids, and cystic fibrosis, among other rare and complex conditions.

Compared to Medicaid, children and youth that receive CaCoon nurse home visits had significantly higher rates of:

Immunizations

CaCoon annual flu immunization rates were more than twice as high as Medicaid children in 2010 and 2011. For children that turned two years old during the year, the CaCoon up-to-date immunization rate was 29% higher than Medicaid children in 2010 and 12% higher in 2011.

Annual well-child visits

The CaCoon annual well child care visit rate was 23% higher than Medicaid children in 2010 and 26% more in 2011.

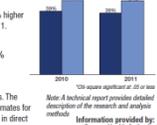
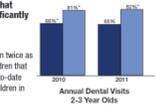
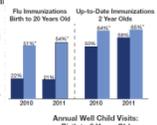
Annual dental care visits

The CaCoon annual dental care visit rate was 21% higher than Medicaid children in 2010 and 2011.

CaCoon Potential Medicaid Cost Savings

Immunizations generate significant economic benefits. The Centers for Disease Control and Prevention (CDC) estimates for every dollar spent on immunizations about six dollars in direct medical costs are saved. The higher CaCoon immunization rate results in considerable Medicaid savings.

Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyph.org



Note: A technical report provides detailed description of the research and analysis methods.
Information provided by: Oregon Health Authority, Department of Medical Assistance Programs, Immunization Program, Maternal and Child Health.



CaCoon: Emergency Room Use Comparison between Medicaid Children with Special Health Needs Who Did and Did Not Receive CaCoon Services

CaCoon clients were 13 percent less likely to visit the emergency room.

CaCoon is an Oregon public health nurse home visiting program for children and youth with special health needs (CYSNH) from birth to 21 years. CaCoon nurses provide comprehensive nurse assessments, interventions and care coordination to improve access to care and health outcomes.

Special Health Needs Diagnoses
Congenital, mental health, behavioral health, and developmental diagnosis defined special health needs diagnoses (SHN). Nearly one third of CaCoon clients had multiple SHN diagnoses compared to only two percent of the Medicaid-Not CaCoon clients.

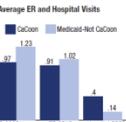
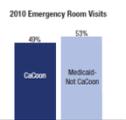
Study
The purpose of the study was to compare emergency room visits between Medicaid clients who did and did not receive CaCoon services. Because CaCoon served a demographically and medically higher risk group, a matched sample of Medicaid clients who did not receive CaCoon was selected for comparison. Clients with no or multiple SHN diagnoses were excluded. Clients were matched by SHN, age, and length of Medicaid enrollment. Study participants included 542 CaCoon and 4,919 Medicaid-Not CaCoon clients.

Results
CaCoon clients received an average of seven CaCoon visits. CYSNH who received CaCoon visits were 13 percent less likely to visit the emergency room in 2010, controlling for age, ethnicity, length of Medicaid enrollment, 2010 outpatient hospitalization and 2009 emergency room visits. Younger clients, clients with a 2009 inpatient hospitalization, and 2009 emergency room visits were more likely to visit the emergency room in 2010. Hispanic clients and clients with longer Medicaid enrollment were less likely to visit the emergency room in 2010.

CaCoon Potential Medicaid Cost Savings
The average cost for an emergency room visit was \$1,349 according to the National Medical Expenditure Panel Survey. The results indicate substantial potential Medicaid savings for CYSNH who receive CaCoon home visits.

Note: A technical report provides detailed description of the research and analysis methods.

Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyph.org



Autism
Autism
Cleft Palate
Optic Fibrosis
Diabetes
Down Syndrome
Epilepsy
Failure to Thrive
Hearing Loss
Heart Conditions
Muscular Dystrophy
Sickle Cell Anemia
Spina Bifida



Maternity Case Management (MCM): A Public Health Nurse Home Visiting Program: Timely and Adequate Prenatal Care for High Risk Pregnant Women

MCM is provided in many settings by different types of providers. These results reflect outcomes for the public health nurse home visiting program which operates out of local health departments with support from the state public health division.

Medicaid and MCM
There were 68,833 live Medicaid births from 2009 to 2012, excluding twins and births with unknown gestational age. Significantly more MCM clients were younger than 18 years old, lower income, Hispanic, Asian, Black/African American and Native American compared to pregnant Medicaid clients.

Study
Because MCM served a higher risk group, a matched sample of Medicaid clients who did not receive MCM was selected to control for sociodemographic differences. Clients were matched by pregnancy year, age, race, ethnicity, poverty, Medicaid enrollment length and urban or rural county. There were 5,405 MCM and 5,405 non-MCM study participants. MCM clients received an average of six MCM visits and had significantly higher rates of medical risk during pregnancy including mental health diagnoses, tobacco use, alcohol and drug abuse.

Prenatal Care
Timely and adequate prenatal care was measured using a modified Adequacy of Prenatal Care Index. Prenatal care had to begin by the fourth month of pregnancy and 90 percent of expected visits had to be received. Because of the complexity of measuring prenatal care from Medicaid claims, the expected number of prenatal care visits was reduced by one visit. For example, 11 prenatal care visits received during a 40 week pregnancy.

Results
Results indicate that participants who received MCM visits were 29 percent more likely to receive timely and adequate prenatal care or an increase of 14 percent per visit, controlling for sociodemographic and medical risk factors. Hispanic, Urban, and clients with longer Medicaid enrollment were more likely to receive timely and adequate prenatal care. Younger, Black/African American, and clients with mental health diagnoses were less likely to receive timely and adequate prenatal care.

MCM Potential Medicaid Cost Savings
The National Committee for Quality Assurance estimates that every \$1 spent on prenatal care yields a savings of \$3.33 for medical care after birth, indicating substantial potential savings for Medicaid.

Timely and Adequate Prenatal Care by Medicaid Risk Factor

Risk Factor	MCM	Medicaid-Not MCM
Hispanic	34%	24%
Hispanic/Asian	34%	24%
Hispanic/Black/African American	34%	24%
Hispanic/Asian/Black/African American	34%	24%
Hispanic/Asian/Black/African American/Other	34%	24%
Urban	34%	24%
Hispanic/Urban	34%	24%
Hispanic/Urban/Black/African American	34%	24%
Hispanic/Urban/Black/African American/Other	34%	24%
Longer Medicaid Enrollment	34%	24%
Longer Medicaid Enrollment/Urban	34%	24%
Longer Medicaid Enrollment/Hispanic	34%	24%
Longer Medicaid Enrollment/Hispanic/Urban	34%	24%
Longer Medicaid Enrollment/Hispanic/Urban/Black/African American	34%	24%
Longer Medicaid Enrollment/Hispanic/Urban/Black/African American/Other	34%	24%

Note: A technical report provides detailed description of the research and analysis methods.
Information provided by: Oregon Health Authority, Department of Medical Assistance Programs - Maternal and Child Health.



Maternity Case Management (MCM): A Public Health Nurse Home Visiting Program: Reduced Early Preterm Births for High Risk Pregnant Women

MCM is provided in many settings by different types of providers. These results reflect outcomes for the public health nurse home visiting program which operates out of local health departments with support from the state public health division.

Medicaid and MCM
There were 68,833 live Medicaid births from 2009 to 2012, excluding twins and births with unknown gestational age. Ten percent of women with a Medicaid-paid birth received MCM. Significantly more MCM clients were younger than 18 years old, lower income, Hispanic, Asian, Black/African American and Native American compared to pregnant Medicaid clients who did not receive MCM.

Study
Because MCM served a higher risk group, a matched sample of Medicaid clients who did not receive MCM was selected to control for sociodemographic differences. Clients were matched by pregnancy year, age, race, ethnicity, poverty, Medicaid enrollment length and urban or rural county. There were 5,405 MCM and 5,405 non-MCM study participants.

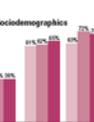
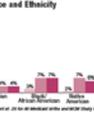
Results
MCM clients received an average of six MCM visits and had significantly higher rates of medical risk during pregnancy including mental health diagnoses, tobacco use, alcohol and drug abuse, but had the same risk for diabetes and hypertension.

Study
Results indicated that MCM visits reduced early preterm delivery* five percent per visit or 31 percent for clients with five or more visits, controlling for adequate prenatal care, sociodemographic and medical risk factors.

MCM Potential Medicaid Cost Savings
MCM clients had fewer early preterm deliveries and their early preterm infants spent 15% fewer days in the NICU than preterm infants of Medicaid clients who did not receive MCM. The Institute of Medicine estimates the national average cost of a preterm birth is \$51,000 or \$3,000 per day in the NICU according to the Agency for Healthcare Research and Quality. The estimates suggest the potential for substantial Medicaid savings.

Maternity Case Management
971-673-0252

Information provided by: Oregon Health Authority, Department of Medical Assistance Programs, Maternal and Child Health.



Purpose



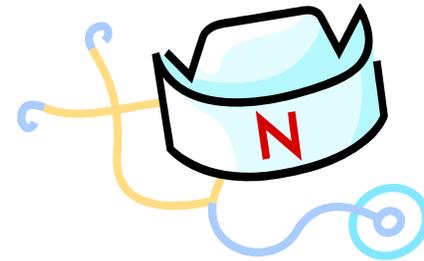
To establish evidence-based health outcomes for the Oregon public health nurse home visiting programs

The whole is greater than the sum of the parts

Aristotle

Nurse Home Visiting Programs

- Babies First!
- CaCoon
- Maternity Case Management



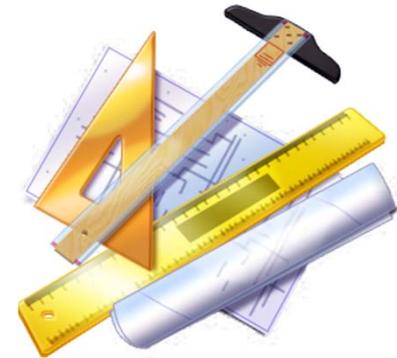
Data Sources



- Medicaid Database (DSSURS)
- Immunization Database (ALERT)
- Program Database (ORCHIDS/Multnomah County)

Overview of Health Outcome Measures

- Annual Flu Immunizations
- Up-To-Date Two Year Old Immunizations
- HEDIS Measures
 - Annual Well Child Visits
 - Annual Dental Visits
- Hospitalization
- Special Health Needs Diagnoses
- Emergency Room Visits
- Timely and Adequate Prenatal Care
- Early Preterm Delivery



Overview of Study Comparison Groups

- Babies First! & CaCoon (Medicaid enrolled)
 - All same aged Medicaid clients
 - Age specific outcome measures
 - Medicaid clients
 - Matched sample of Medicaid clients
- Maternity Case Management (Medicaid enrolled)
 - All Medicaid births & mothers
 - Matched sample of Medicaid births & mothers

Babies First! Outcomes for High-Risk Children up to Age 5

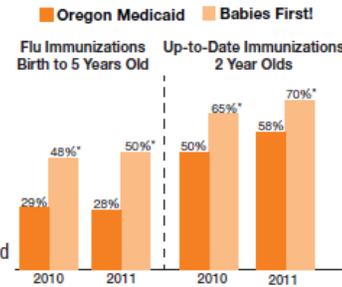
Babies First! is a statewide public health nurse home visiting program for families with babies and young children up to age 5 years old. The goal is to identify high-risk infants (based on social, emotional and medical risk factors) and improve the health outcomes of these vulnerable children through prevention and early intervention.



Compared to Medicaid, children that received Babies First! Medicaid nurse home visits had significantly* higher rates of:

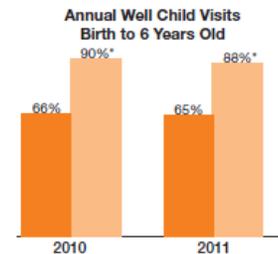
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Immunizations save lives and improve quality of life. Babies First! annual flu immunization rates were more than one and half times greater than Medicaid children in 2010 and 2011. For children who turned two years old during the year, Babies First! up-to-date immunization rates were 30% higher than Medicaid in 2010 and 21% higher in 2011.



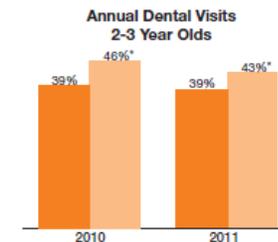
Annual well-child visits

Well-child visits are routinely scheduled preventive visits for children. Well-child visits are essential for maintaining long term positive health for children. Babies First! children were 37% more likely to receive an annual well child visit than other Medicaid children in 2010 and 36% more in 2011.



Annual dental visits

Developing good dental habits and routines early in life is important for long term health. Babies First! clients were 18% more likely to receive an annual dental visit than other Medicaid children in 2010 and 10% more likely in 2011.



*Chi-square significant at .05 or less

Note: A technical report provides detailed description of the research and analysis methods

Information provided by:
Oregon Health Authority:
Department of Medical Assistance Programs
Immunization Program
Maternal and Child Health

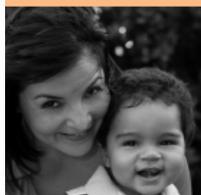
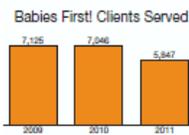
At a glance:

Babies First! clients are more likely than other Medicaid clients to be up-to-date on immunizations.

Children involved with Babies First! access important early dental care.

"Our nurse was the best. She was compassionate, capable, knowledgeable, and caring. I learned so much about parenting, health and safety issues from her."

-Babies First! Client



Babies First! Potential Medicaid Cost Savings

Immunizations: Immunizations generate significant economic benefits. The Centers for Disease Control and Prevention (CDC) estimates for every dollar spent on immunizations about six dollars in direct medical costs are saved. The higher Babies First! immunization rate may therefore result in considerable Medicaid savings.

Medicaid hospital costs: A recent study indicates that Babies First! visits were associated with a 10% reduction in Medicaid hospitalization compared to clients who did not receive nurse home visits. The national average cost of a child's hospital visit is \$5,200, indicating substantial potential Medicaid savings.

Babies First!
971-673-0252 <http://1.usa.gov/10rSIHS>

Oregon Health

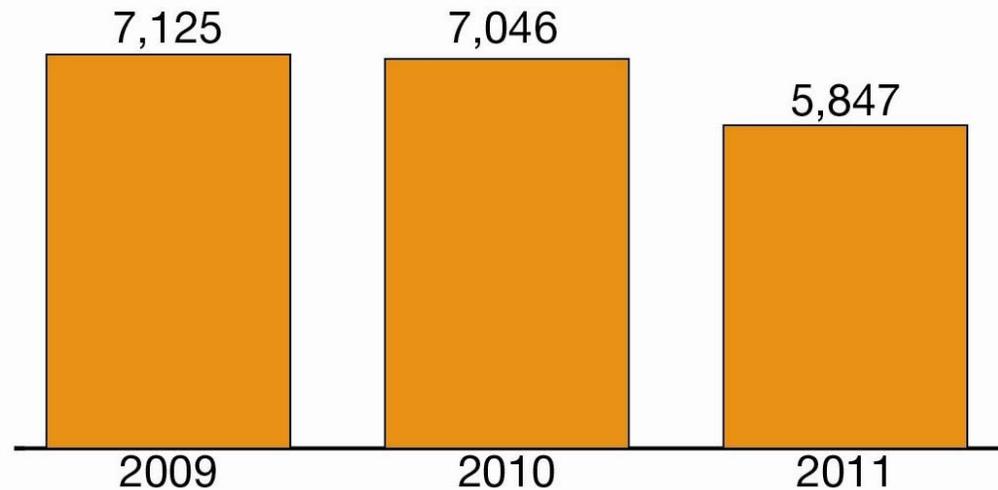
Oregon Health Authority



Babies First!

(at risk children birth up to age five)

Babies First! Clients Served



Health Outcome Measures

Immunizations



- Annual Flu Immunizations 2010 & 2011
 - Immunization between August & April
- Up-To-Date Two Year Old Immunizations
 - 4:3:1:3:3:1:4 (total=19)
 - Diphtheria, tetanus, pertussis, measles, mumps, rubella, haemophilus influenzae type B, hepatitis B, varicella, pneumococcal conjugate

Health Outcome Measures

HEDIS Measures

(Healthcare Effectiveness Data & Information Set)

Age Specific Annual Well Child Visits

- 5 visits in the first 15 months of life
- 1 visit per year through age 6

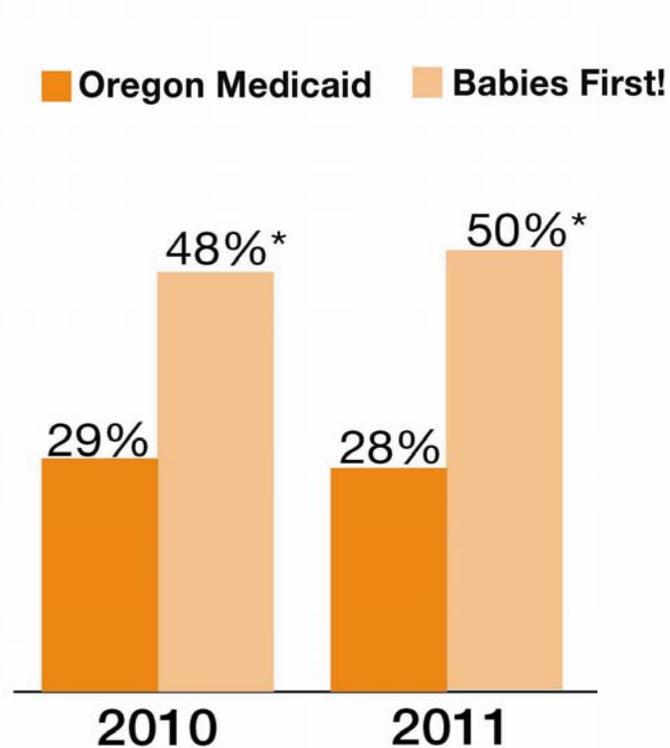


Annual Dental Visits for 2-3 year olds

Medicaid Hospitalization

Medicaid children who received Babies First! visits had significantly higher annual flu immunization rates

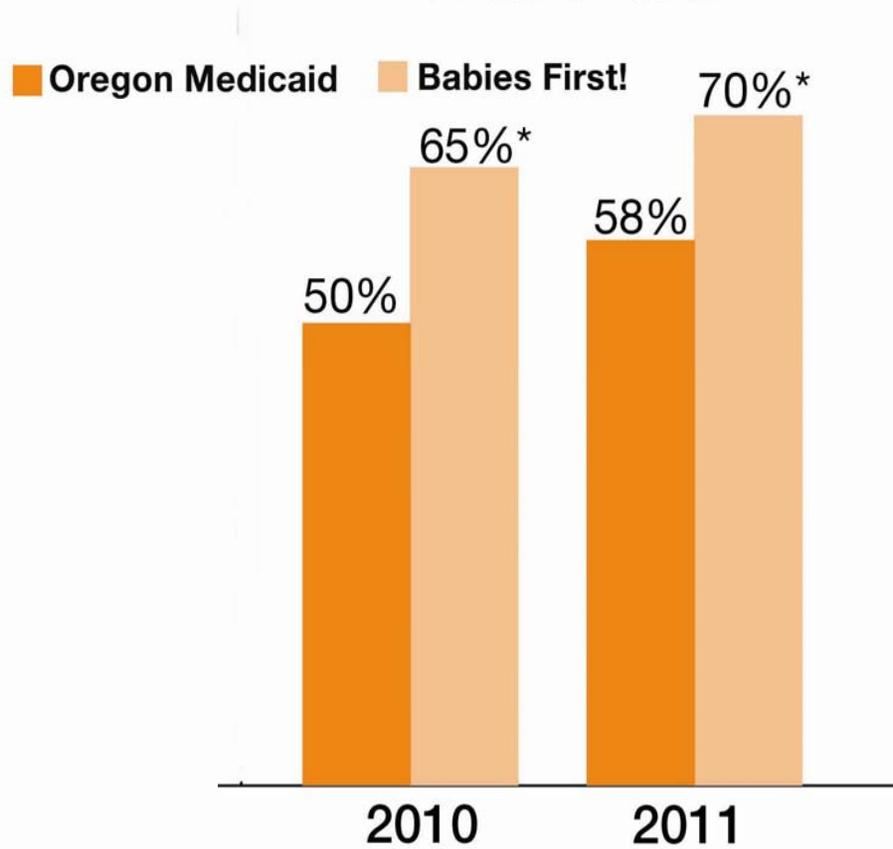
Flu Immunizations Birth to 5 Years Old



*chi-square significant at .05 or less

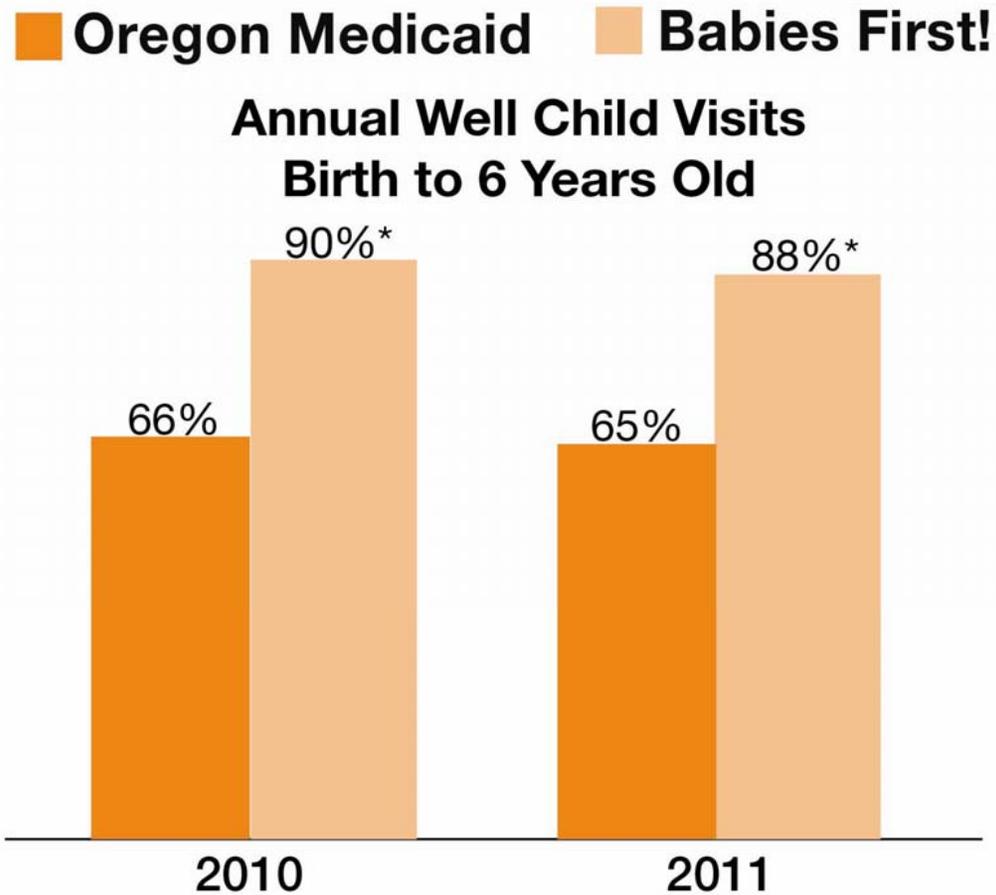
Medicaid children who received Babies First! visits had significantly higher up-to-date two year old immunization rates

Up-to-Date Immunizations 2 Year Olds



*chi-square significant at .05 or less

Medicaid children who received Babies First! visits had significantly higher rates of annual well child visits

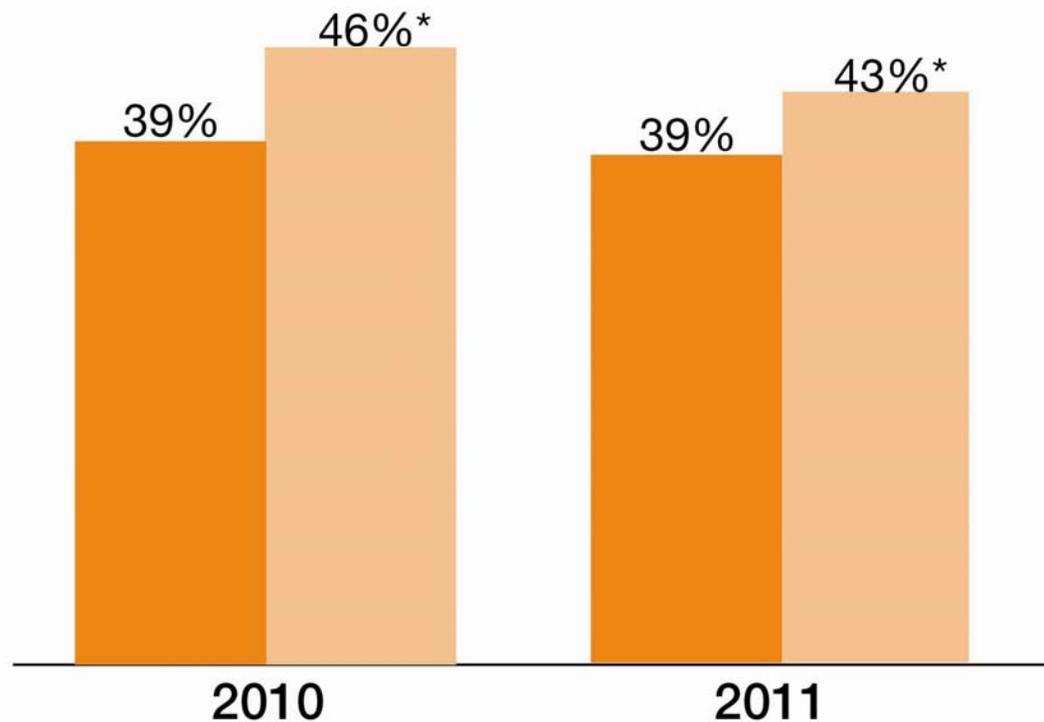


**chi-square significant at .05 or less*

Medicaid children who received Babies First! visits had significantly higher rates of annual dental visits

■ Oregon Medicaid ■ Babies First!

Annual Dental Visits 2-3 Year Olds



*chi-square significant at .05 or less

Babies First!: Medicaid Hospitalization

Comparison Between Medicaid Clients Who Did and Did Not Receive Babies First! Visits

The purpose of the study was to compare inpatient hospitalization between Medicaid clients who did and did not receive Babies First! visits. Because Babies First! served a higher risk group, a matched sample of Medicaid clients who did not receive Babies First! was selected for comparison.



Babies First!: Medicaid Hospitalization

Study Participants

2009 Medicaid Clients

Medicaid enrolled 2009 and 2010

5,656 Babies First! & 5,656 Medicaid-Not Babies First! clients

Matched Sample of Medicaid-Not Babies First! Clients

Age

Gender

Race & ethnicity

County

Income

Medical risk factors (CDPS)

Length of Medicaid enrollment

Babies First! Medicaid Hospitalization Results

Controlling for Medicaid enrollment, medical risk,
2009 hospitalization and sociodemographics:

Babies First! visits were associated with a **10% reduction** in 2010 hospitalization



Babies First! Potential Medicaid Savings

**For every dollar spent on immunizations about \$6
in direct medical costs are saved**

Centers for Disease Control and Prevention (CDC)

Average cost of hospitalization \$5,200

2011 HCUP statistical brief

<http://www.hcup-us.ahrq.gov/reports/statbriefs/sb118.pdf>

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Special Health Needs Diagnoses.

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Results

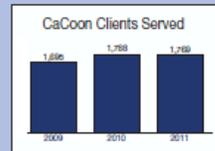
CaCoon clients had different demographic and medical risks compared to Medicaid-Not CaCoon clients. CaCoon served a significantly higher frequency of younger, male, rural, Hispanic, Black/African American, and Native American clients. CaCoon clients maintained steady enrollment in Medicaid with 93 percent enrolled for three or more years compared to only 29 percent of Medicaid clients with a SHN and 27 percent of Medicaid clients without a SHN.

Inpatient Hospitalization

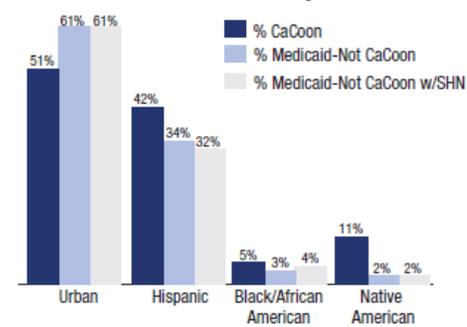
Inpatient hospitalization varied greatly between the groups. CaCoon clients were hospitalized nearly three times more than Medicaid-Not CaCoon clients with a SHN and nearly 10 times more than Medicaid-Not CaCoon clients without a SHN.

CaCoon served more demographically diverse at-risk and higher medical risk clients than Medicaid clients who did not receive CaCoon services.

**Children with special health care needs (CYSHN) have or are at increased risk for a chronic physical, developmental, behavioral, or emotional conditions and who also require health and related services of a type or amount beyond that required by children generally. For example, more inpatient and outpatient care, specialty provider care, prescriptions, speech and occupational therapy, and assistive devices.*



Race and Ethnicity



Most Frequent SHN Diagnoses (Total Clients)

	CaCoon	Medicaid-Not CaCoon
Developmental Delay	17%	Asthma 4%
Heart Conditions	13%	Heart Conditions 1%
Hearing Loss	11%	Hearing Loss 1%
Failure to Thrive	8%	Convulsion Conditions 1%
Convulsion Conditions	6%	Kidney 1%
Asthma	6%	Failure to Thrive 1%
Brain Condition	6%	Attention Deficit Disorder 0.5%

Most Frequent SHN Diagnoses (Clients with only one SHN)

	CaCoon	Medicaid-Not CaCoon with SHN
Developmental Delay	22%	Asthma 39%
Heart Conditions	11%	Heart Conditions 12%
Hearing Loss	9%	Hearing Loss 9%
Asthma	6%	Kidney Conditions 5%
Failure to Thrive	6%	Convulsion Conditions 4%
Autism	5%	Failure to Thrive 4%
Cleft Palate	4%	Other Congenital Condition 3%

Note: A technical report provides detailed description of the research and analysis methods



CaCoon (CYSHN birth to age 21)

CYSHN are children and youth with special health care needs who have or are at risk for chronic physical, developmental, behavioral, or emotional conditions and who also require health and related services of a type or amount beyond that required by children generally.

Maternal Child Health Bureau Definition

Medicaid Diagnosis Comparison

Medicaid CaCoon and Medicaid-Not CaCoon

Study Participants

2009 Medicaid clients
Birth up to 6 years old

1,198 CaCoon & 122,082 Medicaid-Not CaCoon



Special Health Needs Diagnoses (SHN)

Medicaid claims 2008 to 2012

Congenital

Mental Health

Behavioral Health

Developmental

Medicaid Diagnosis Comparison

Medicaid CaCoon and Medicaid-Not CaCoon

Special Health Needs Diagnoses (SHN)

in Medicaid claims data

No SHN Diagnoses

13% CaCoon v 89% Medicaid-Not CaCoon

Only One SHN Diagnosis

61% CaCoon v 9% Medicaid-Not CaCoon

More than One SHN Diagnosis

27% CaCoon v 2% Medicaid-Not CaCoon

Medicaid Diagnosis Comparison

Medicaid CaCoon and Medicaid-Not CaCoon

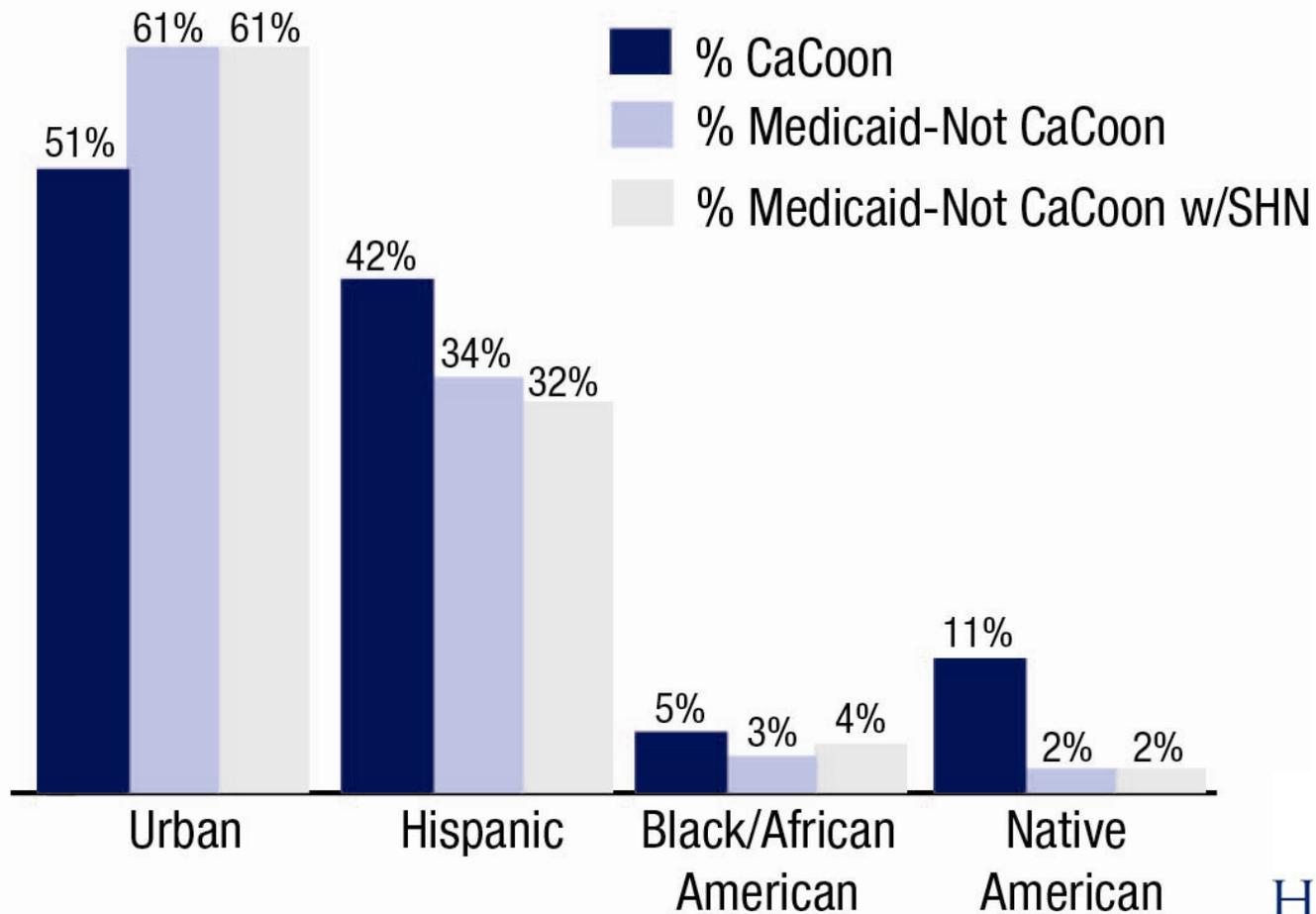
Most Frequent SHN Diagnoses (Total Clients)			
CaCoon		Medicaid--Not CaCoon	
Developmental Delay	17%	Asthma	4%
Heart Conditions	13%	Heart Conditions	1%
Hearing Loss	11%	Hearing Loss	1%
Failure to Thrive	8%	Convulsion Conditions	1%
Convulsion Conditions	6%	Kidney	1%
Asthma	6%	Failure to Thrive	1%
Brain Condition	6%	Attention Deficit Disorder	0.5%

Medicaid Diagnosis Comparison

Medicaid CaCoon and Medicaid-Not CaCoon

Most Frequent SHN Diagnoses (Clients with only one SHN)			
CaCoon		Medicaid--Not CaCoon with SHN	
Developmental Delay	22%	Asthma	39%
Heart Conditions	11%	Heart Conditions	12%
Hearing Loss	9%	Hearing Loss	9%
Asthma	6%	Kidney Conditions	5%
Failure to Thrive	6%	Convulsion Conditions	4%
Autism	5%	Failure to Thrive	4%
Cleft Palate	4%	Other Congenital Condition	3%

Medicaid CaCoon & Medicaid-Not CaCoon (Sociodemographics)



Medicaid CaCoon and Medicaid-Not CaCoon

Length of Medicaid Enrollment 2008-11: 3+ years

93% CaCoon

27% Medicaid-Not CaCoon

29% Medicaid-Not CaCoon w SHN

Inpatient Hospitalization 2009-10

28% CaCoon

3% Medicaid-Not CaCoon

10% Medicaid-Not CaCoon w SHN



Medicaid CaCoon and Medicaid-Not CaCoon

CaCoon clients were significantly different than Medicaid-Not CaCoon clients with or without SHN

- *Younger
- *Male
- *Rural
- *Hispanic
- *Black or African American
- *Native American
- *Longer Medicaid Enrollment
- *SHN Type and Frequency
- *Hospitalization

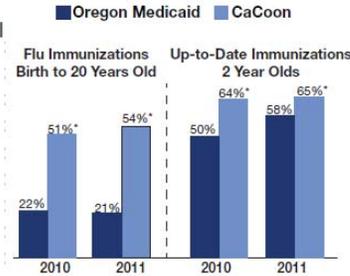


CaCoon: Evidence-Based Outcomes for Serving Children with Special Health Needs



CaCoon is a statewide public health nurse home visiting program providing care coordination for families with children, birth to 21 years, with special health needs. These children and their families often have very complex health and related needs requiring coordination across multiple systems of care. CaCoon nurses assess family needs and provide interventions and care coordination to improve their health and well-being. The goal is to assure these children access to needed health and related services, spanning multiple systems of care, resulting in optimal health and well-being.

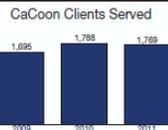
CaCoon children have complex needs. About 27% of CaCoon children have multiple chronic medical diagnoses, compared to only 2% of Medicaid children not served by CaCoon. CaCoon diagnoses include cleft palate, developmental delay, Down syndrome, epilepsy, failure to thrive, hearing loss, heart and brain disorders, cerebral palsy, spina bifida, and cystic fibrosis, among other rare and complex conditions.



At a glance:

CaCoon clients have higher immunization rates, well child visits, primary care visits, and dental care than Medicaid clients not served by CaCoon

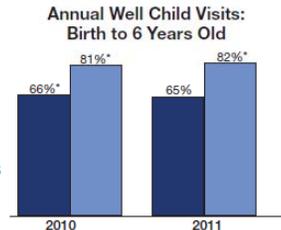
*"I don't think my son would be here if the CaCoon nurse hadn't linked me to the services needed to help him."
— CaCoon Client*



Compared to Medicaid, children and youth that receive CaCoon nurse home visits had significantly higher rates of:

Immunizations

CaCoon annual flu immunization rates were more than twice as high as Medicaid children in 2010 and 2011. For children that turned two years old during the year, the CaCoon up-to-date immunization rate was 28% higher than Medicaid children in 2010 and 12% higher in 2011.

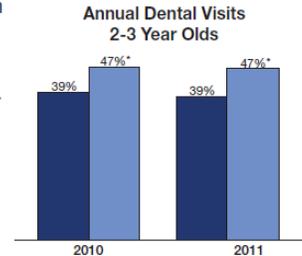


Annual well-child visits

The CaCoon annual well child care visit rate was 23% higher than Medicaid children in 2010 and 26% more in 2011.

Annual dental care visits

The CaCoon annual dental care visit rate was 21% higher than Medicaid children in 2010 and 2011.



**Chi-square significant at .05 or less*

Note: A technical report provides detailed description of the research and analysis methods

Information provided by:

Oregon Health Authority
Department of Medical Assistance Program
Immunization Program
Oregon Center for Children and Youth with Special Health Needs

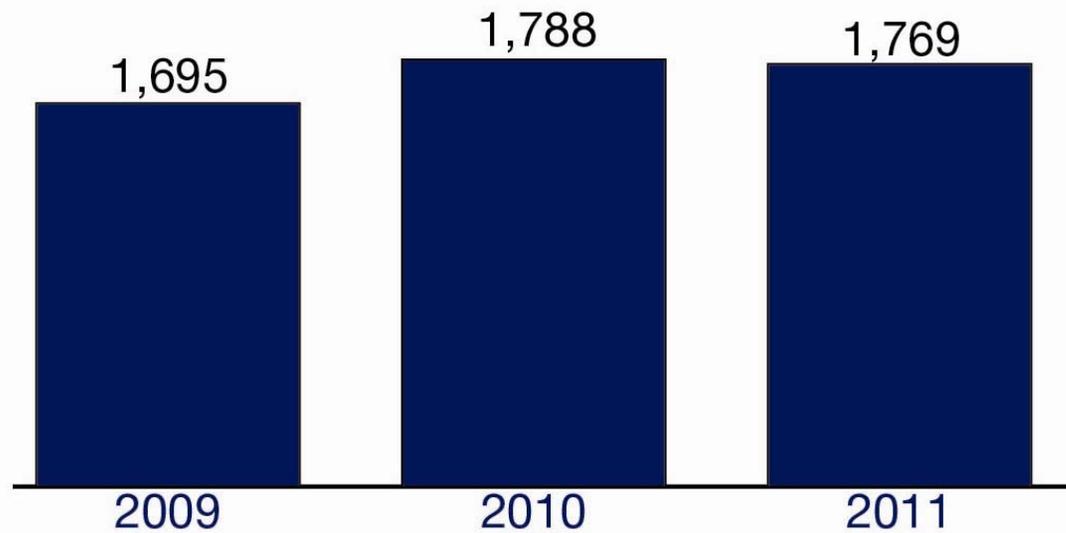
Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyshn.org





CaCoon (CYSHN birth to age 21)

CaCoon Clients Served



Health Outcome Measures

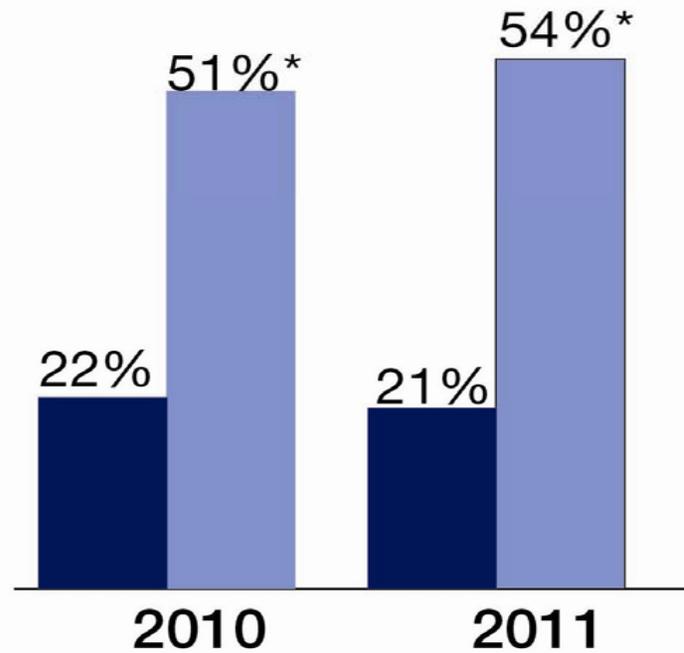
- Annual Flu Immunizations 2010 and 2011
- Up-To-Date Two Year Old Immunizations
- HEDIS Measures
 - Annual Well Child Visits
 - Annual Dental Visits



Medicaid children who received CaCoon visits had significantly higher annual flu immunization rate

Flu Immunizations Birth to 20 Years Old

■ Oregon Medicaid ■ CaCoon

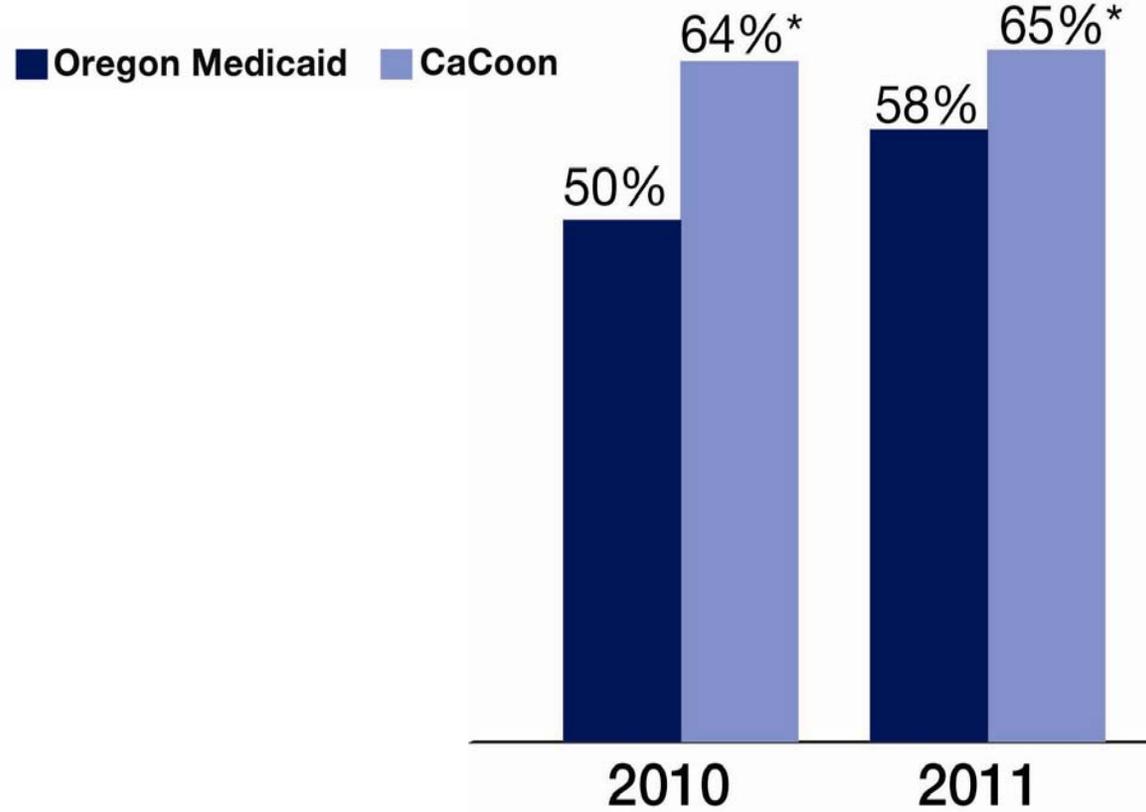


*chi-square significant at .05 or less

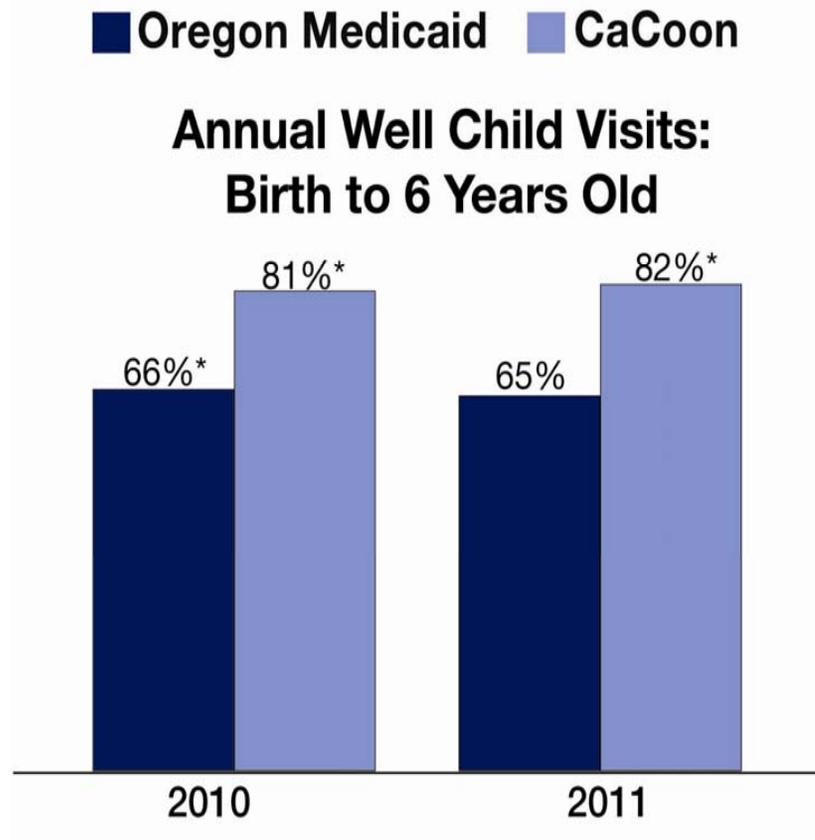


Medicaid children who received CaCoon visits had significantly higher up-to-date two year old immunization rates

Up-to-Date Immunizations 2 Year Olds



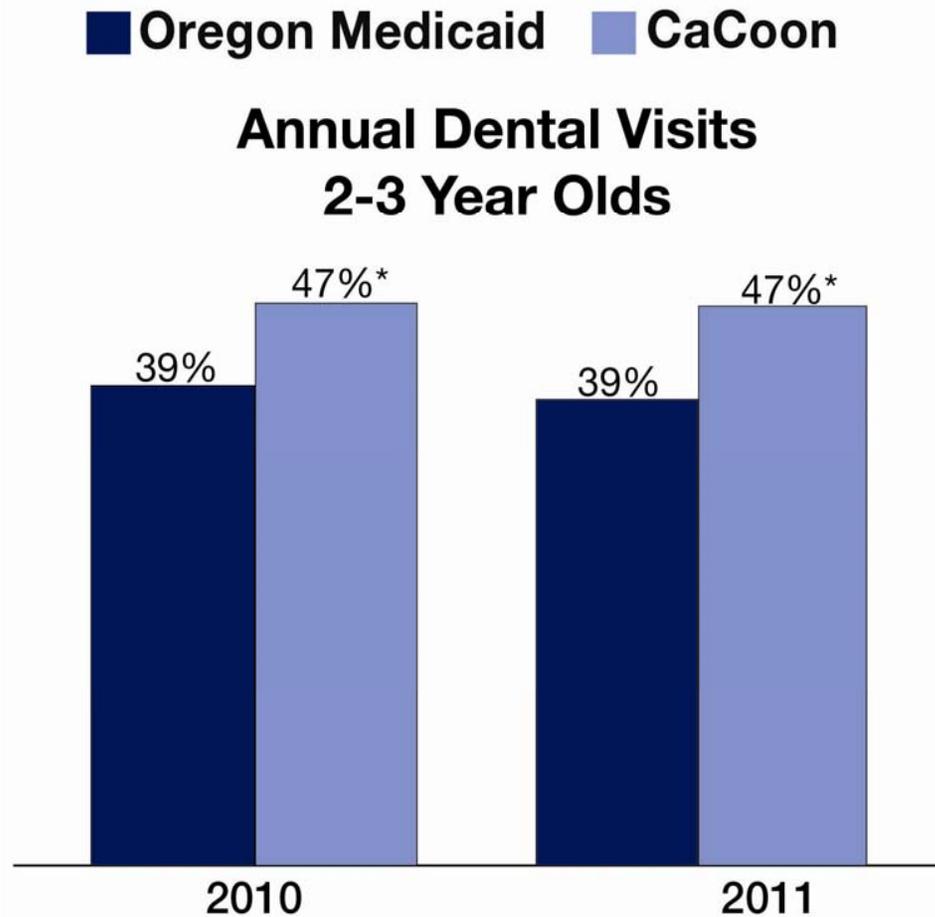
Medicaid children who received CaCoon visits had significantly higher annual well child visit rates



*chi-square significant at .05 or less



Medicaid children who received CaCoon visits had significantly higher annual dental visit rates



*chi-square significant at .05 or less



CaCoon:

Emergency Room Use Comparison between Medicaid Children with Special Health Needs Who Did and Did Not Receive CaCoon Services

CaCoon clients were 13 percent less likely to visit the emergency room.

CaCoon is an Oregon public health nurse home visiting program for children and youth with special health needs (CYSHN*) from birth to 21 years. CaCoon nurses provide comprehensive nurse assessments, interventions and care coordination to improve access to care and health outcomes.

Special Health Needs Diagnoses

Congenital, mental health, behavioral health, and developmental diagnoses defined special health needs diagnoses (SHN). Nearly one third of CaCoon clients had multiple SHN diagnoses compared to only two percent of the Medicaid-Not CaCoon clients.

Study

The purpose of the study was to compare emergency room visits between Medicaid clients who did and did not receive CaCoon services. Because CaCoon served a demographically and medically higher risk group, a matched sample of Medicaid clients who did not receive CaCoon was selected for comparison. Clients with no or multiple SHN diagnosis were excluded. Clients were matched by SHN, age, and length of Medicaid enrollment. Study participants included 542 CaCoon and 4,919 matched Medicaid Not CaCoon clients.

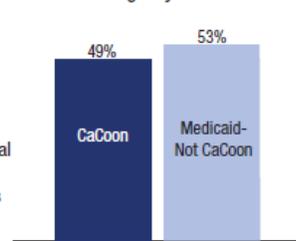
Results

CaCoon clients received an average of seven CaCoon visits. CYSHN who received CaCoon visits were 13 percent less likely to visit the emergency room in 2010, controlling for age, ethnicity, length of Medicaid enrollment, 2009 inpatient hospitalization and 2009 emergency room visits. Younger clients, clients with a 2009 inpatient hospitalization, and 2009 emergency room visits were more likely to visit the emergency room in 2010. Hispanic clients and clients with longer Medicaid enrollment were less likely to visit the emergency room in 2010.

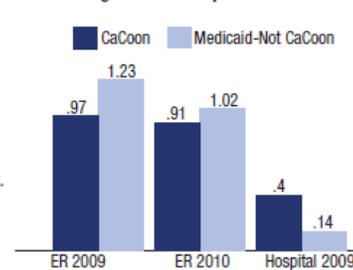
CaCoon Potential Medicaid Cost Savings

The average cost for an emergency room visit was \$1,349 according to the National Medical Expenditure Panel Survey. The results indicate substantial potential Medicaid savings for CYSHN who receive CaCoon home visits.

2010 Emergency Room Visits



Average ER and Hospital Visits

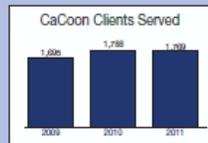


SHN Diagnosis Examples

Asthma
Autism
Cleft Palate
Cystic Fibrosis
Diabetes
Down Syndrome
Epilepsy
Failure to Thrive
Hearing Loss
Heart Conditions
Muscular Dystrophy
Sickle Cell Anemia
Spina Bifida

Note: A technical report provides detailed description of the research and analysis methods

**Children with special health care needs (CYSHN) have or are at increased risk for a chronic physical, developmental, behavioral, or emotional conditions and who also require health and related services of a type or amount beyond that required by children generally. For example, more inpatient and outpatient care, specialty provider care, prescriptions, speech and occupational therapy, and assistive devices.*



Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyshn.org



OREGON
HEALTH & SCIENCE
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CaCoon: Emergency Room Use

Comparison Between Medicaid CSHN Who Did and Did Not Receive CaCoon Visits

The purpose of the study was to compare emergency room visits between Medicaid CSHN clients who did and did not receive CaCoon visits. Because CaCoon served a sociodemographically and medically higher risk group, a matched sample of Medicaid clients who did not receive CaCoon was selected for comparison.



CaCoon: Emergency Room Use

Comparison Between Medicaid CSHN Who Did and Did Not Receive CaCoon Visits

Study Participants

2009 Medicaid clients

Medicaid enrolled 2009 and 2010

Birth up to 6 years old

Only one SHN diagnosis

Matched Medicaid-Not CaCoon Clients

SHN

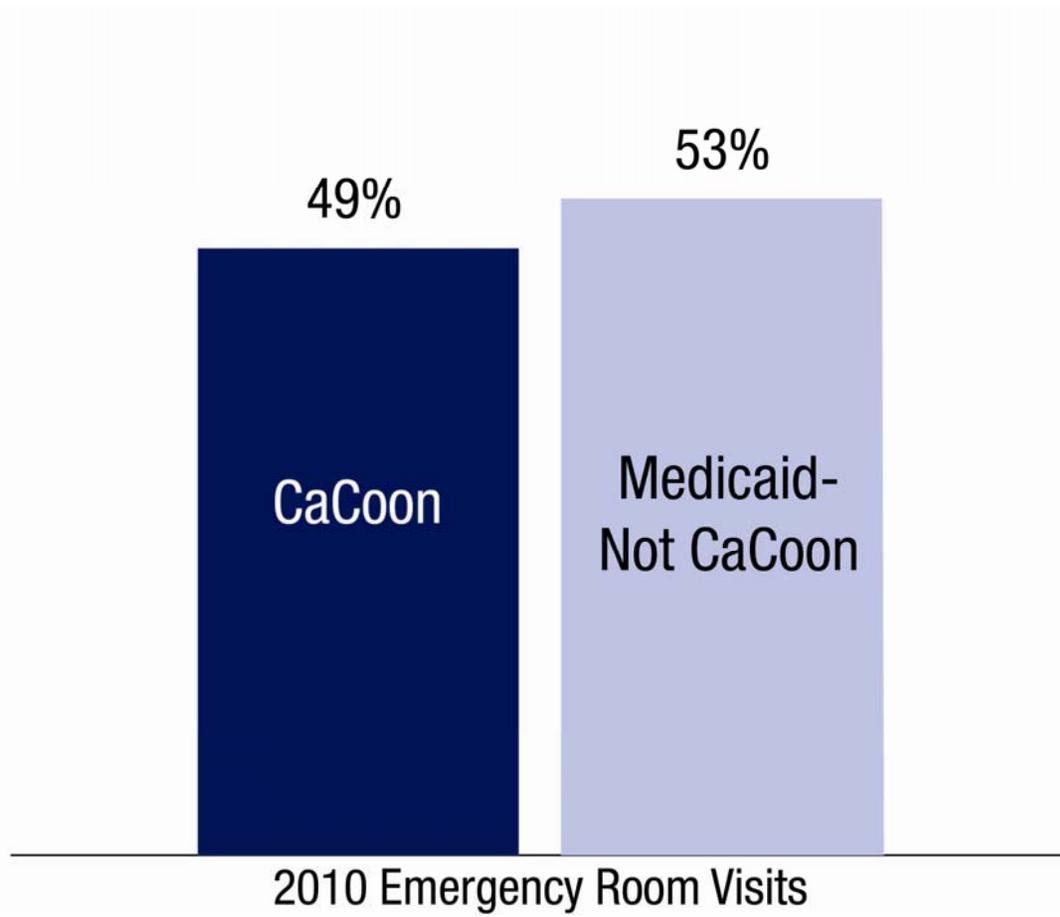
Age

Length of Medicaid enrollment



CaCoon: Emergency Room Use

Comparison Between Medicaid CSHN Who Did and Did Not Receive CaCoon Visits



CaCoon: Emergency Room Use

Comparison Between Medicaid CSHN Who Did and Did Not Receive CaCoon Visits

Controlling for age, ethnicity, length of Medicaid enrollment, 2009 inpatient hospitalization, and 2009 emergency room visits:

CaCoon clients were **13% less likely** to visit the emergency room in 2010

CaCoon: Potential Medicaid Cost Savings

For every dollar spent on immunizations about \$6 in direct medical costs are saved.

Centers for Disease Control and Prevention (CDC)



The average cost for an emergency room visit was \$1,349

National Medical Expenditure Panel Survey



Maternity Case Management (MCM) A Public Health Nurse Home Visiting Program Timely and Adequate Prenatal Care for High Risk Pregnant Women

MCM is provided in many settings by different types of providers. These results reflect outcomes for the public health nurse home visiting program which operates out of local health departments with support from the state public health division.

Medicaid and MCM

There were 68,833 live Medicaid births from 2009 to 2012, excluding twins and births with unknown gestational age. Significantly more MCM clients were younger than 18 years old, lower income, Hispanic, Asian, Black/African American and Native American compared to pregnant Medicaid clients.

Study

Because MCM served a higher risk group, a matched sample of Medicaid clients who did not receive MCM was selected to control for sociodemographic differences. Clients were matched by pregnancy year, age, race, ethnicity, poverty, Medicaid enrollment length and urban or rural county. There were 5,405 MCM and 5,405 non-MCM study participants. MCM clients received an average of six MCM visits and had significantly higher rates of medical risk during pregnancy including mental health diagnoses, tobacco use, alcohol and drug abuse.

Prenatal Care

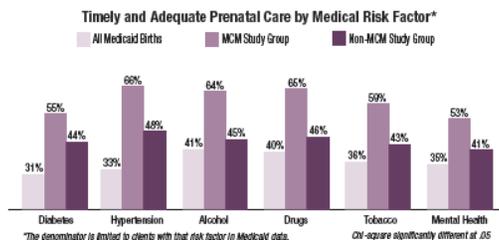
Timely and adequate prenatal care was measured using a modified Adequacy of Prenatal Care Index. Prenatal care had to begin by the fourth month of pregnancy and 80 percent of expected visits had to be received. Because of the complexity of measuring prenatal care from Medicaid data, the expected number of prenatal care visits was reduced by one visit. For example, 11 prenatal care visits received during a 40 week pregnancy.

Results

Results indicate that participants who received MCM visits were 75 percent more likely to receive timely and adequate prenatal care or an increase of 14 percent per visit, controlling for sociodemographic and medical risk factors. Hispanic, Urban, and clients with longer Medicaid enrollment were more likely to receive timely and adequate prenatal care. Younger, Black/African American, and clients with mental health diagnoses were less likely to receive timely and adequate prenatal care.

MCM Potential Medicaid Cost Savings

The National Committee for Quality Assurance estimates that every \$1 spent on prenatal care yields a savings of \$3.33 for medical care after birth, indicating substantial potential savings for Medicaid.



Note: A technical report provides detailed description of the research and analysis methods

Information provided by:
Oregon Health Authority:
Department of Medical Assistance Programs ~ Maternal and Child Health



At a glance:

Oregon Medicaid clients who received public health nurse home visits through MCM were 75% more likely to receive timely and adequate prenatal care than Medicaid clients who did not receive these services.



Maternity Case Management
971-673-0252

Maternity Case Management (MCM) A Public Health Nurse Home Visiting Program Reduced Early Preterm Births for High Risk Pregnant Women

MCM is provided in many settings by different types of providers. These results reflect outcomes for the public health nurse home visiting program which operates out of local health departments with support from the state public health division.

Medicaid and MCM

There were 68,833 live Medicaid births from 2009 to 2012, excluding twins and births with unknown gestational age. Ten percent of women with a Medicaid-paid birth received MCM. Significantly more MCM clients were younger than 18 years old, lower income, Hispanic, Asian, Black/African American and Native American compared to pregnant Medicaid clients who did not receive MCM.

Study

Because MCM served a higher risk group, a matched sample of Medicaid clients who did not receive MCM was selected to control for sociodemographic differences. Clients were matched by pregnancy year, age, race, ethnicity, poverty, Medicaid enrollment length and urban or rural county. There were 5,405 MCM and 5,405 non-MCM study participants.

Results

MCM clients received an average of six MCM visits and had significantly higher rates of medical risk during pregnancy including mental health diagnoses, tobacco use, alcohol and drug abuse, but had the same risk for diabetes and hypertension.

Results indicated that MCM visits reduced early preterm delivery* five percent per visit or 31 percent for clients with five or more visits, controlling for adequate prenatal care, sociodemographic and medical risk factors.

MCM Potential Medicaid Cost Savings

MCM clients had fewer early preterm deliveries and their early preterm infants spent 10% fewer days in the NICU than preterm infants of Medicaid clients who did not receive MCM. The Institute of Medicine estimates the national average cost of a preterm birth is \$51,000 or \$3,000 per day in the NICU according to the Agency for Healthcare Research and Quality. The estimates suggest the potential for substantial Medicaid savings.

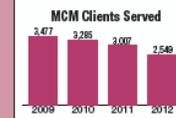
Maternity Case Management
971-673-0252

Information provided by:
Oregon Health Authority:
Department of Medical Assistance Programs
Maternal and Child Health

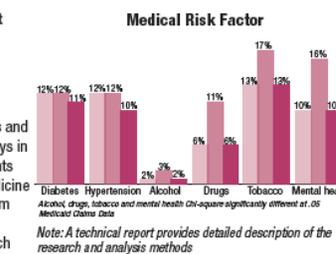
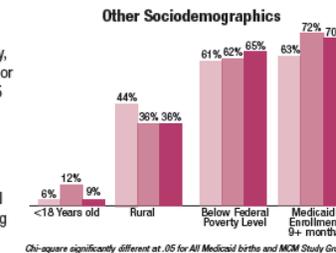
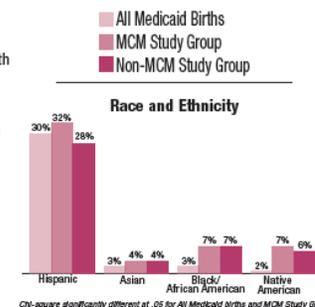


At a glance:

Oregon Medicaid clients who received public health nurse home visits through MCM were less likely to deliver early preterm than Medicaid clients who did not receive these services.

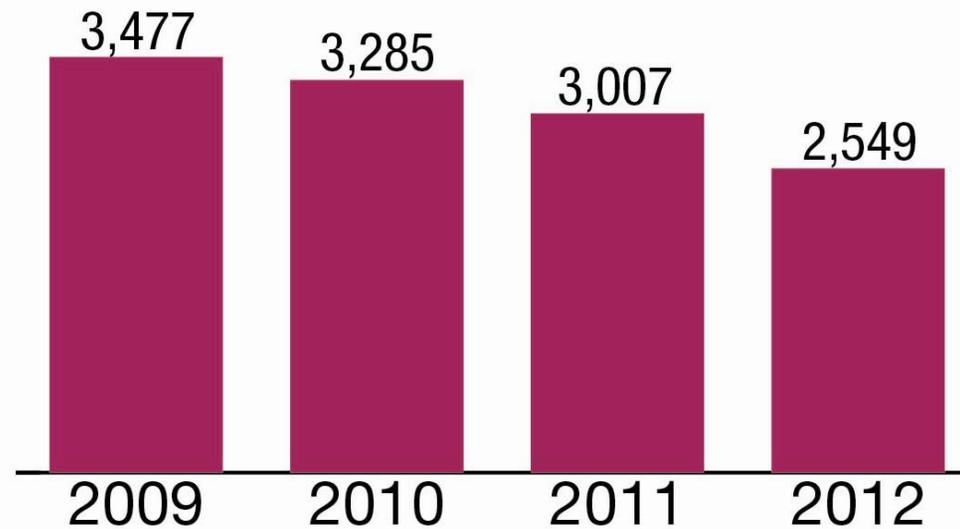


*Early Preterm: Less than 35 weeks gestation



Public Health Nurse Home Visiting Maternity Case Management (MCM) (at risk pregnant women)

MCM Clients Served



Medicaid Maternity Case Management (MCM) (Medicaid at risk pregnant women)

Study Exclusions

Twins or other multiples
Unknown gestational Age

Study Groups

All Medicaid Births 2009-12 (68,833)
MCM Medicaid Births (5,405)
Matched Non-MCM Medicaid Births (5,405)



Medicaid Maternity Case Management (MCM)

Matched Study Sample

Because MCM served higher risk clients, a matched sample of Medicaid clients who did not receive MCM was selected to control for differences

Matched Sample of Non-MCM Study Group

Pregnancy year

Age

Race (prioritized)

Ethnicity

Urban or Rural

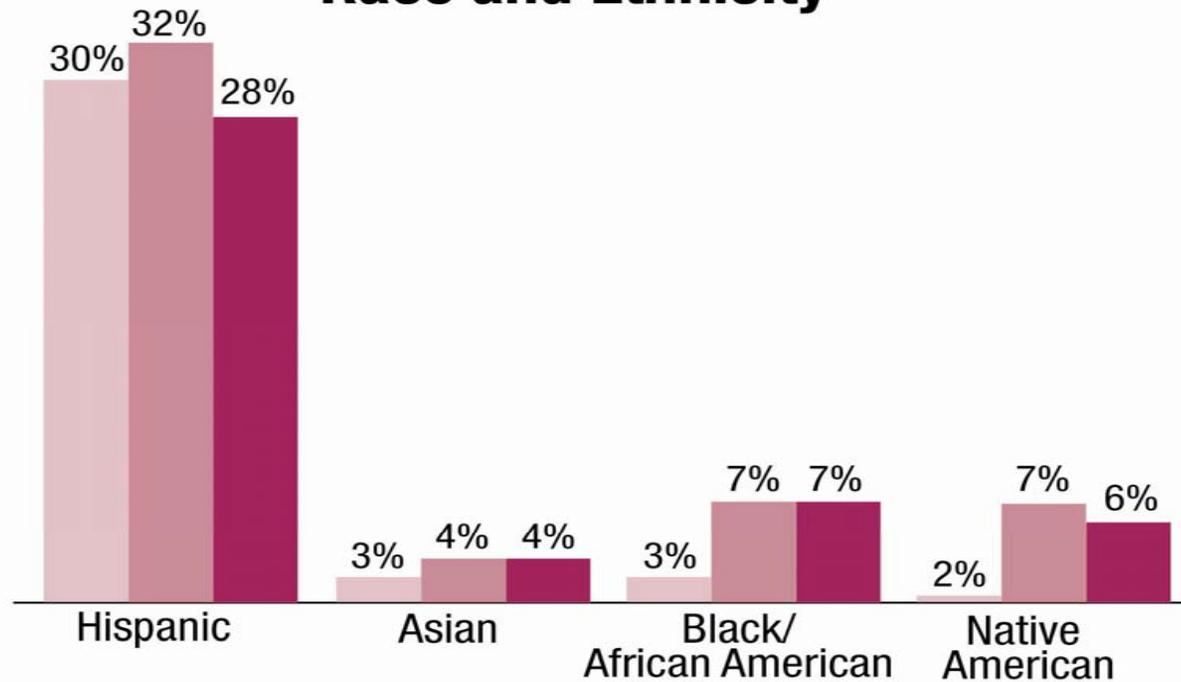
Poverty

Medicaid Enrollment Length

Medicaid Maternity Case Management (MCM)

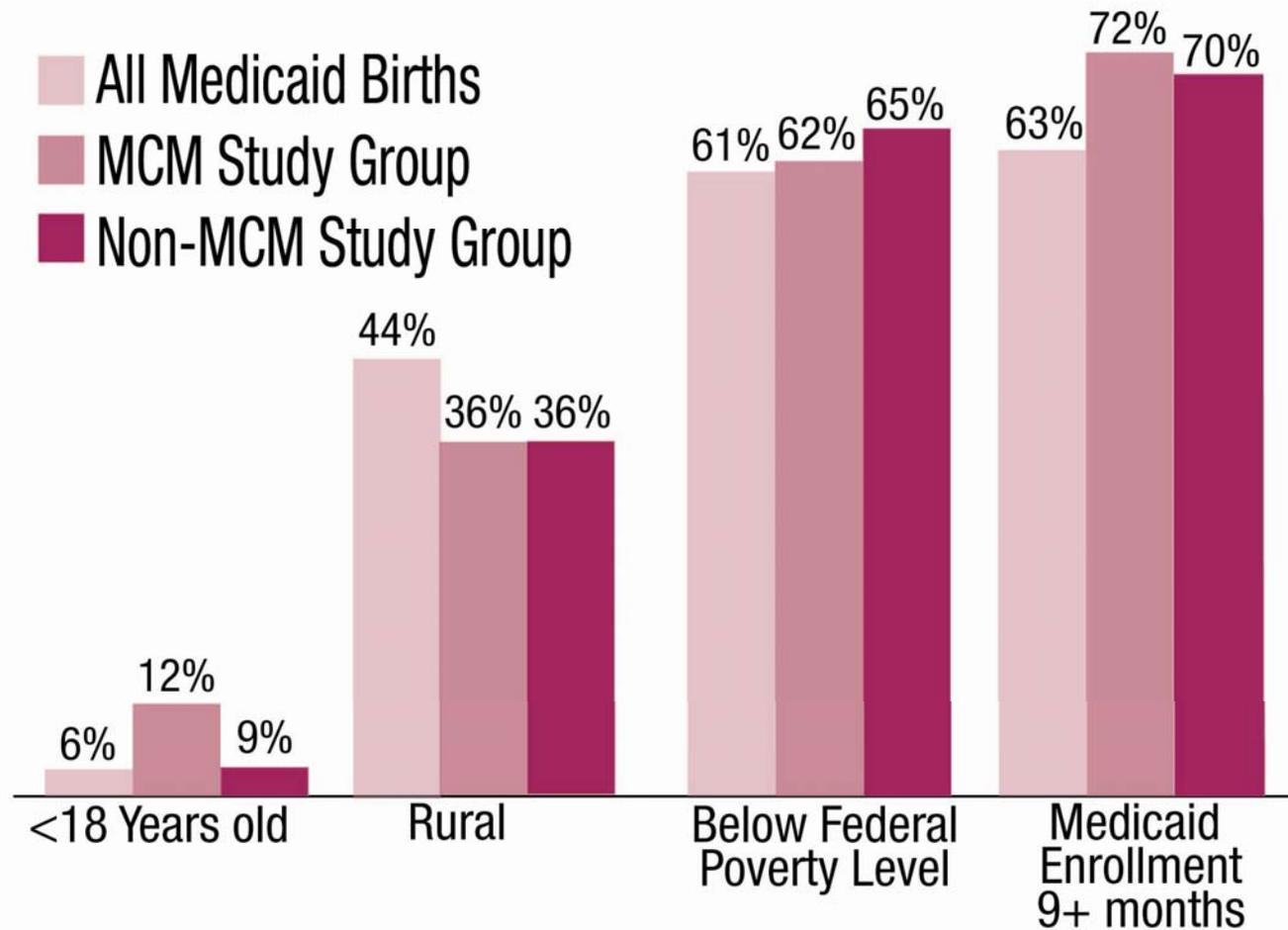
- All Medicaid Births
- MCM Study Group
- Non-MCM Study Group

Race and Ethnicity



Chi-square significantly different at .05 for All Medicaid births and MCM Study

Medicaid Maternity Case Management (MCM)



Medicaid Maternity Case Management (MCM)

Conducted two outcome studies:

Early Preterm Delivery

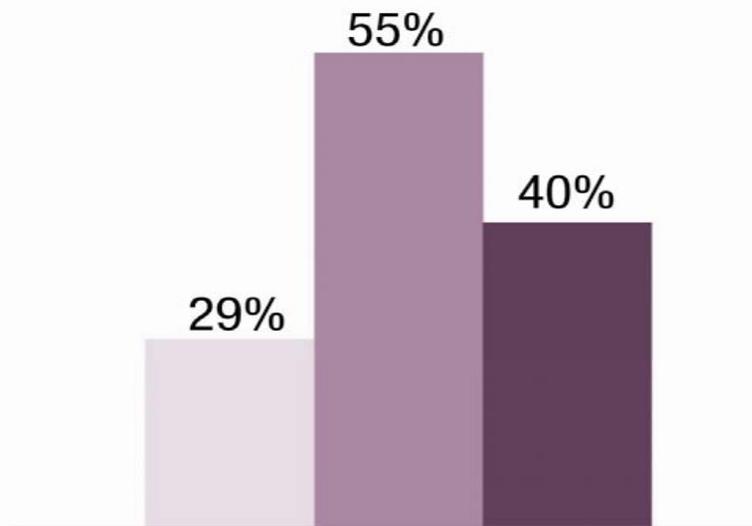
Timely & Adequate Prenatal Care

Medicaid Maternity Case Management (MCM) Study Measures

Timely and adequate prenatal care was measured using a modified Adequacy of Prenatal Care Index

Timely and Adequate Prenatal Care

- All Medicaid Births
- MCM Study Group
- Non-MCM Study Group



Note: Medicaid claims limitations

Medicaid Maternity Case Management (MCM) Expected Prenatal Care Visits

Gestational Age at Birth	Expected PNC Visits	80% of Expected PNC Visits	Modified
40 weeks	15	12	11
39 weeks	14	11	10
38 weeks	13	10	9
37 weeks	12	10	9
36 weeks	11	9	8
35 weeks	11	9	8
34 weeks	10	8	7
33 weeks	10	8	7
32 weeks	9	7	6

Medicaid Maternity Case Management (MCM) Study Measures

- Early Pre Term Birth: Less than 35 weeks gestation
- Pre Term Birth: 35 up to 37 weeks gestation
- Full Term Birth: 37 plus weeks gestation

Note: Medicaid claims limitations

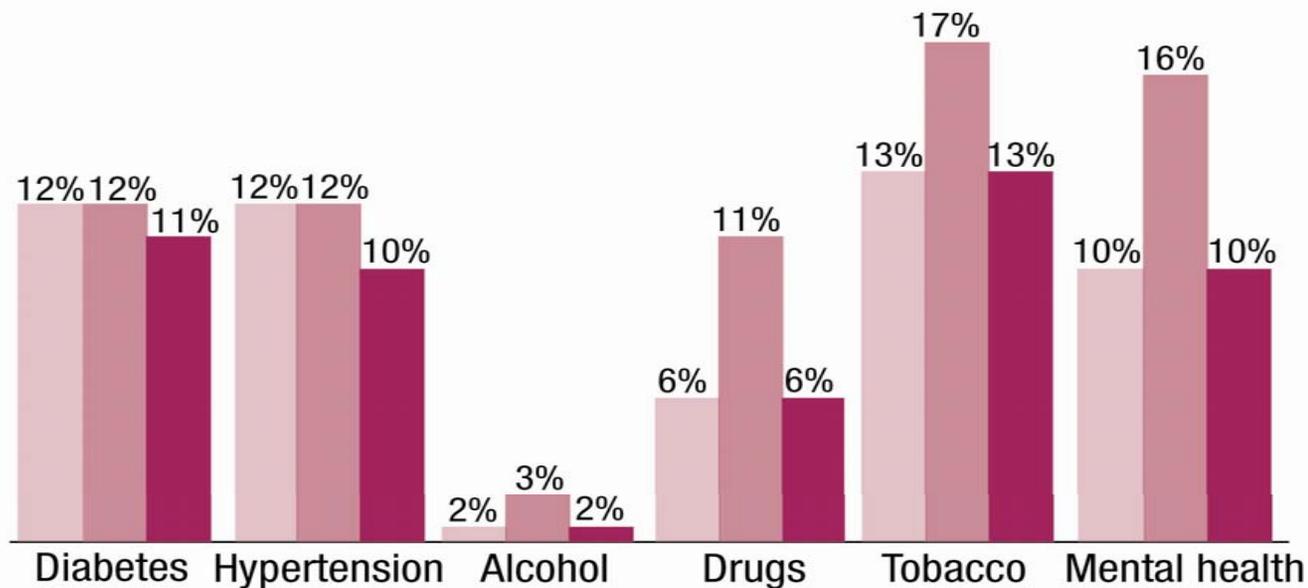
Medicaid Maternity Case Management (MCM) Gestational Age at Birth

	Medicaid Births	MCM	Non-MCM	% Medicaid Births	% PH-MCM	% Non-MCM
Full term	63,502	4,994	5,015	92.3%	92.4%	92.8%
Late Preterm	2,968	250	213	4.3%	4.6%	3.9%
Early Preterm	2,363	161	177	3.4%	3.0%	3.3%

Medicaid Maternity Case Management (MCM) Results

- All Medicaid Births
- MCM Study Group
- Non-MCM Study Group

Medical Risk Factors

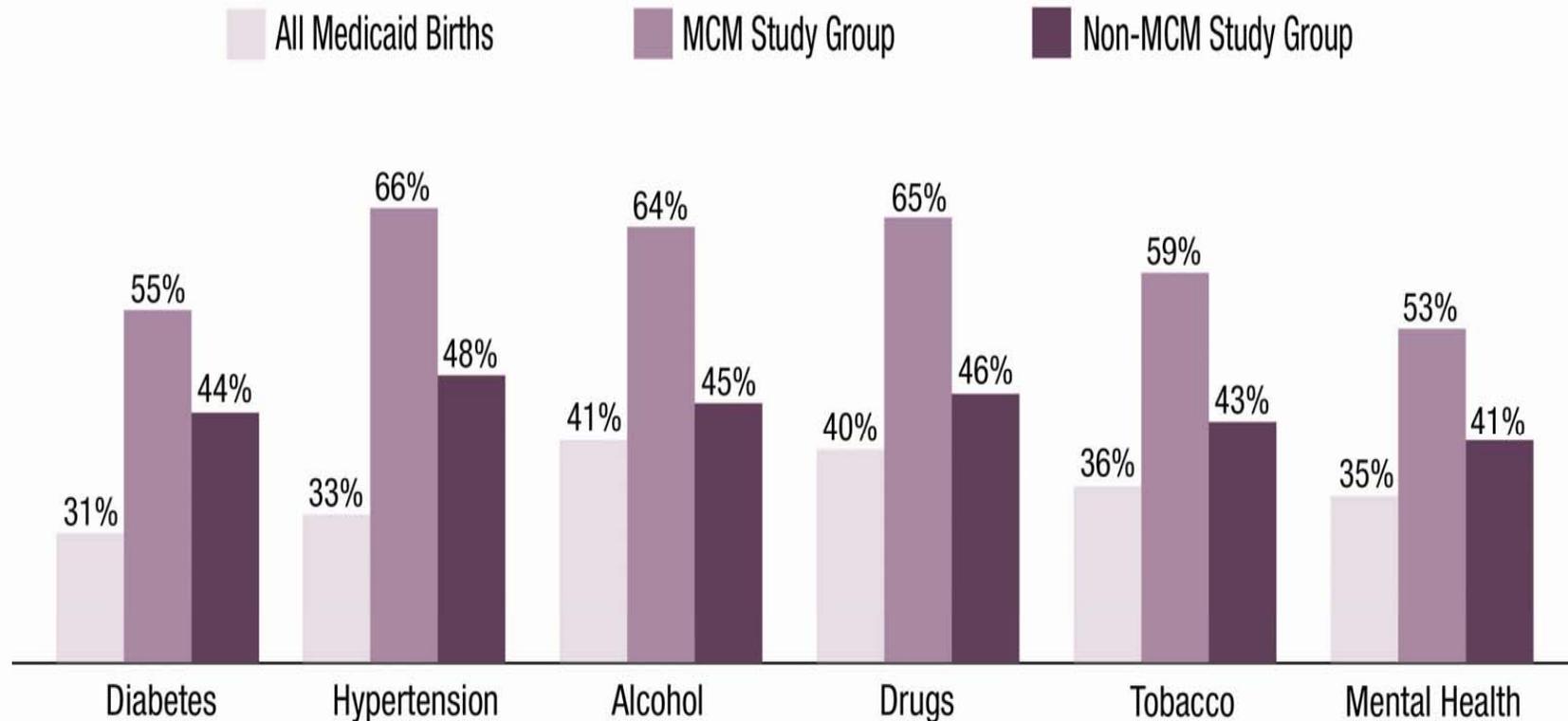


Alcohol, drugs, tobacco and mental health Chi-square significantly different at .05

**Note Medical risk factors from Medicaid claims*

Medicaid Maternity Case Management (MCM) Results

Timely and Adequate Prenatal Care by Medical Risk Factor*



*The denominator is limited to clients with that risk factor in Medicaid data.

Chi-square significantly different at .05

*Note Medical risk factors from Medicaid claims

Medicaid Maternity Case Management (MCM) Results

Controlling for sociodemographics and medical risk factors:

- Early preterm delivery was reduced 31% for clients with five or more MCM visits or 5% per visit
- Clients with MCM visits were 75% more likely to receive timely & adequate prenatal care or 14% more likely per visit

MCM Potential Medicaid Cost Savings

MCM clients had fewer early preterm births

MCM clients with early preterm births spent 10% fewer days in the NICU

- The Institute of Medicine estimates the national average cost of a preterm birth was \$51,000 or \$3,000 per day in the NICU according to the Agency for Health Care Research & Quality
- The National Committee for Quality Assurance estimates that for every \$1 spent on prenatal care saves \$3.33 in medical care after birth

The whole is greater than the sum of the parts

OPHA Panel Presentation: October 14, 2014 Corvallis,OR

Questions?

Technical & Research: Mary Ann Evans

Nurse Consultants: Candace Artemenko
Francine Goodrich
Lari Peterson

Policy: Marilyn Hartzell & Cate Wilcox



Where is the information?

Web links:

<http://www.ohsu.edu/xd/outreach/occyshn/programs-projects/cacoon.cfm>

<http://public.health.oregon.gov/HealthyPeopleFamilies/DataReports/Pages/nurse-home-visiting.aspx>



Questions & Answers

Poll Questions

